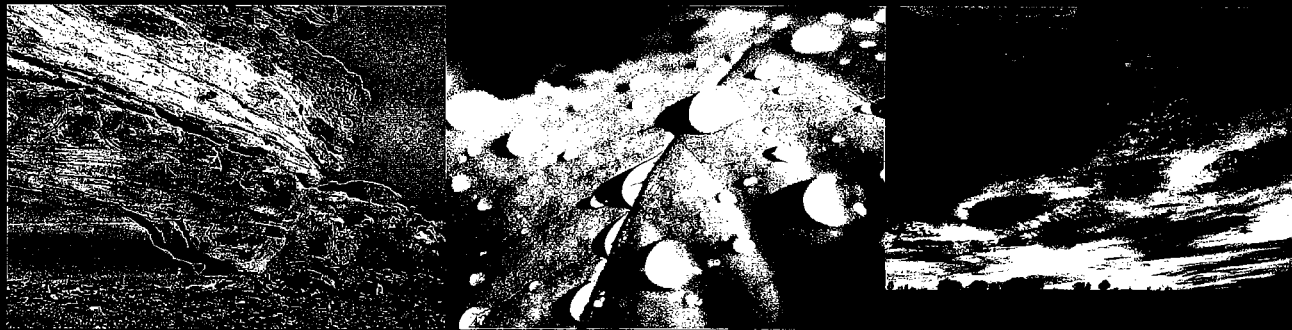


MAG 208 Amendment

for the
City of Surprise
Special Planning Area No. 5
Regional Water Reclamation Facility



Prepared for

City of Surprise
12425 W. Bell Rd., Suite D-100
Surprise, AZ 85374

Elliott Homes
1400 E. Southern Ave., #720
Tempe, AZ 85282

Anderson Land
12438 N. Scottsdale Rd.
Scottsdale, AZ 85254

Wittman 510 LLC
8501 N. Scottsdale Rd., #165
Scottsdale, AZ 85253

Prepared by



One Gateway
426 N. 44th Street, Suite 200
Phoenix, AZ 85008



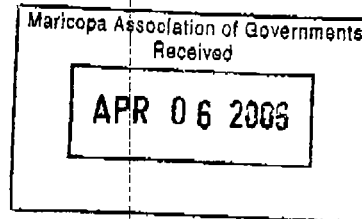
One Gateway
426 N. 44th Street, Suite 200
Phoenix, AZ 85008



Water Services Department
12425 West Bell Road
Suite D-100
Surprise, Arizona 85374-9002
Phone 623-875-4290 / TDD 623-875-4208
Fax 623-583-2892

April 5, 2006

Attn: Julie A. Hoffman
Maricopa Association of Governments
302 North 1st Ave., Suite # 300
Phoenix, Arizona 85003



Re: Formal Initiation of 208 Amendment for the City of Surprise, Special Planning Area 5.

Dear Ms. Hoffman:

The City of Surprise is formally requesting an Amendment for the Clean Water Act, Section 208 for the Water Quality Management Plan in the City of Surprise Special Planning Area 5 (SPA 5). This 208 Amendment is for the City of Surprise SPA 5 Regional Wastewater Treatment Plant with an ultimate capacity of 8 MGD. The City of Surprise is in the process of negotiating and executing a development agreement with Elliott Homes which will provide developer funding of the design, construction, and initial operations and maintenance of the developer-funded phase of the SPA 5 Regional WRF with City of Surprise ownership and operations and maintenance responsibility.

Currently you should have in your possession no-objection letters from all surrounding municipalities within a minimum of three miles from the SPA 5 Planning Area. Our understanding is that once we have received a no-objection letter from Maricopa County Environmental Services Department we will be ready to be placed on the next available Water Quality Advisory Committee meeting currently scheduled for April 25, 2006.

Please feel free to contact me at 623-594-5743 if you any questions or concerns.

Sincerely,

James Shano - Infrastructure Manager
City of Surprise, Water Services Department

CC: Rich Williams, Water Services Director
Doug Sandstrom, Assistant City Manager, City of Surprise
Ken James, Maricopa County Environmental Services Department
Ryan Christensen, RBF Engineering
Raj Thakur, .RT Engineering
File

MAG 208 Amendment

for the

City of Surprise Special Planning Area No. 5 Regional Water Reclamation Facility

Prepared for

**Anderson Land
12438 N. Scottsdale Rd.
Scottsdale, AZ 85254**

**Wittman 510 LLC
8501 N. Scottsdale Rd., #165
Scottsdale, AZ 85253
City of Surprise
12425 W. Bell Road, Suite D-100
Surprise, AZ 85374**

**Elliott Homes
1400 E. Southern Ave. #720
Tempe, AZ 85282**

Prepared by



**Pacific Environmental
Resources Corp.
One Gateway
426 N. 44th Street, Suite 200
Phoenix, AZ 85008**



**Pacific Advanced Civil Engineering
One Gateway
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Phoenix, AZ 85008**

Revised April 2006
February 2006
October 2005
#8244E



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- Appendix A Site Map and City of Surprise MPA Map
- Appendix B SPA No.5 Regional WRF Process Design Information
- Appendix C SPA No.5 Draft Construction Schedule
- Appendix D City of Surprise and SPA No. 5 Development Group's Financial Statements
- Appendix E Communication with ADEQ regarding permitting



EXECUTIVE SUMMARY

The water quality management plan for Maricopa County, AZ, based on Section 208(a)(2)(b) of the Clean Water Act (CWA), is provided by the Maricopa Association of Governments (MAG). The goal of the 208 Plan is to identify area-wide wastewater treatment needs, water quality management problems, and establish a program to alleviate them. The City of Surprise has completed an Integrated Water Master Plan, which has identified the collection and wastewater treatment needs for the City of Surprise General Plan 2020 Special Planning Areas 1 to 5. In the SPA No. 5, the projected ultimate build-out capacity is 8.0 MGD, based on a total build-out population of 49,770.

Together Elliott Homes, Wittman 510 LLC and Anderson Land have a total of 3,950 lots within three new developments called Broadstone Ranch, Walden Ranch, and Rancho Maria respectively. The SPA No. 5 Development Group will implement a new wastewater collection system and Phase I (Developer Phase) of the City of Surprise SPA No. 5 Regional Water Reclamation Facility to service the new developments, as well as the remaining portion of SPA No. 5. The City plans to build the SPA No. 5 8.0 MGD Regional Water Reclamation Facility in multiple phases. The first phase, Phase I, will be designated as the Developer's phase. The City envisions the future design of the subsequent phases, from Phase II to build-out, in multiple modular type treatment facilities at future dates.

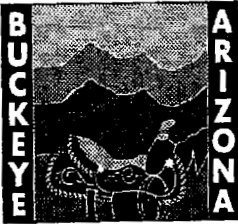
The City has hired a consultant to prepare a Technology Assessment Report, which would identify the wastewater treatment technologies for the City's five special planning areas. Therefore, the City of Surprise is sponsoring this amendment in order to include the SPA No. 5 8.0 MGD Regional WRF into the Regional Water Quality Management Plan and to reduce the impacts that uncoordinated development may have on the groundwater quality and the City's existing wastewater treatment systems. The requested amendment includes the following:

Amendment Item:

The construction of a new City of Surprise owned and operated 8.0 MGD (Phase I - 1.2 MGD) SPA No.5 Regional WRF in the City of Surprise. The new facility will reclaim wastewater flows to Arizona Department of Environmental Quality (ADEQ) Title 18 Class A+ effluent standards from an approximate 29,126 acres within Surprise in Regional Analysis Zones (RAZ) 204 and 211. The facility will be operated starting from zero flow with accommodations for temporary low-loading conditions. An Aquifer Protection Permit (APP) permit and potentially an Arizona Department of Water Resources (ADWR) Aquifer Storage and Recovery permit may be obtained by the City for non-potable reuse and for groundwater recharge of the facility effluent into recharge basins. For future discharge that may exceed the capacity of the recharge basins, an Arizona Pollutant Discharge Elimination System (AZPDES) Permit may be sought to allow for additional discharge points to the Hassayampa River, to the Trilby Wash or an unnamed wash east of the WRF (in the southwest corner of Section 36 T5N R3W of the Gila and Salt River Base Meridian). The SPA No.5 Regional WRF will be designed and constructed in multiple phases which will be sized based on rates of wastewater generation in response to growth in the service area.

The SPA No. 5 Regional WRF will be constructed near the proposed developments, which is consistent with the City of Surprise General Plan 2020. The wastewater collection and effluent distribution systems that are located near the developments are considerably smaller in size and more efficient as compared to systems that convey flows to and from existing or other proposed facilities in the surrounding area. By providing a new facility within a close vicinity of the development, a local source of effluent will become available for irrigation and other non-potable reuse, alleviating pressure on groundwater resources. In addition, artificial recharge of the effluent will provide groundwater recharge credits to the City, while recharging the aquifer in the general area of the original groundwater withdrawal.

This CWA 208 Amendment application provides information on the proposed SPA No.5 Regional WRF. The following sections describe how the Section 208 requirements are addressed, including treatment alternatives, permitting, treatment facility design, sludge management, construction, financing, impacts, and public participation.



Town of Buckeye

January 17, 2006

Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, AZ 85003

Re: MAG 208 Amendment for the City of Surprise Special Planning Area No.5 Regional Water Reclamation Facility

Attention: Julie Hoffman, Environmental Planner

Dear Julie Hoffman,

The City of Surprise is submitting a MAG 208 Water Quality Management Plan Amendment for the City of Surprise Special Planning Area (SPA) No.5 Regional Water Reclamation Facility. The proposed service area for the SPA 5 falls within 3 miles of the Town of Buckeye. In accordance with the requirements of the Maricopa Association of Governments and a request placed by The City of Surprise, we are submitting this letter, which implies that the Town of Buckeye has no objections regarding the proposed sewer service area.

If you have any questions or comments, please feel free to contact me at (623) 386-4691

Sincerely,

Carroll Reynolds, P.E.
Town Manager

CC: Rich Williams, Water Services Director
Scott Lowe, Public Works Director
C. Lucky Roberts, Environmental /Regulatory Manager



Maricopa County

Environmental Services
Water and Waste Management Division

April 12, 2006

1001 N. Central Ave., Suite 150
Phoenix, AZ 85004
Phone: (602) 506-6666
Fax: (602) 506-6925
TDD: 602 506 6704
www.maricopa.gov/envsvc

Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, AZ 85003

Attention: Ms. Lindy Bauer, Environmental Program Coordinator

Re: City of Surprise, Special Planning Area 5
Regional Water Reclamation Facility
Clean Water Act, MAG 208 Amendment

Dear Ms. Bauer:

In a letter dated November 14, 2005, the City of Surprise transmitted a proposed 208 Amendment for the Special Planning Area No. 5 Regional Water Reclamation Facility (RWRF) to Maricopa County Environmental Services Department (Department). The amendment, prepared by PERC and PACE, was revised and resubmitted on February 24, 2006. The RWRF will have an initial capacity of 1.2 MGD and an ultimate capacity of 8.0 MGD. It will be located on a 75-acre site in the southwest corner of Section 36, Township 5N, Range 3W.

Design, construction, and operations of the initial plant will be funded by the developer (Elliot Homes) with City of Surprise ownership and operations and maintenance responsibility.

The document was submitted to the Department because it is located within three miles of unincorporated areas of Maricopa County. A letter of no objection was provided by the Town of Buckeye and by the Town of Wickenburg.

The Department has concerns that the ultimate flow to the plant will be greater than the 8.0 MGD shown in the proposed amendment. To mitigate these concerns, PERC/PACE have shown that the site can accommodate subsequent plant expansions to at least 14.4 MGD.

Based on a review of the proposed 208 MAG 208 Amendment, the Department has determined that the proposed plant does not conflict with Maricopa County plans for the area.

Please note that the Department has not reviewed, nor approved, the design of the facilities as part of the 208 review. Any technical issues that remain will need to be resolved during the design phase of the project. Approval to Construct (ATC) and Approval of Construction (AOC) must be obtained from this Department prior to start of construction and startup, respectively, of all treatment, discharge, recharge, and reuse facilities, including all conveyance facilities and final end user facilities.

If you have any questions or comments, please feel free to contact Mr. Kenneth James, PE, or myself at 506-6666.

Sincerely,

A handwritten signature in cursive script that reads "Kenneth R. James PE, for".

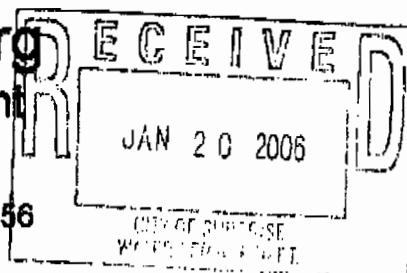
Dale Bodiya, P.E.
Acting Manager, Water and Waste Management Division

cc: Lee Lambert, City of Surprise, 12425 W. Bell Rd, Suite D-100, Surprise, AZ 85374-9002
Duong Do, PE, PERC/PACE, 17520 Newhope St., Suite 200, Fountain Valley, CA 92708
File



Town of Wickenburg Public Works Department

155 N. Tegner, Suite A
Wickenburg, Arizona 85390
(928) 684-2761 Fax (928) 684-9156
publicworks@ci.wickenburg.az.us



January 16, 2006

Ms Julie Hoffman, Environmental Program Director
Maricopa Association of Governments
302 N. 1st Avenue, Suite 300
Phoenix AZ 85003

Dear Ms. Hoffman,

The purpose of this letter is to inform you that the Town of Wickenburg has no objection to and will support the SPA 4 and SPA 5 208 Amendments as submitted by the City of Surprise.

Please feel free to contact me if you have any further questions.

Sincerely,

Harry Parsi, P.E.
Director of Public Works

CC: Rich Williams, City of Surprise Water Services Department

ABBREVIATIONS

ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
APP	Aquifer Protection Permit
AZPDES	Arizona Pollutant Discharge Elimination System
CAP	Central Arizona Project
CFR	Code of Federal Regulations
DU	Dwelling Units
E.D.	Equivalent Dwelling
EPA	Environmental Protection Agency
MAG	Maricopa Association of Governments
MGD	Million gallons per day
MMAD	Maximum Month Average Day
MSDS	Material Safety Data Sheets
O&M	Operations and maintenance
PACE	Pacific Advanced Civil Engineering, Inc.
NTU	Nephelometric Turbidity Unit
RAS	Return Activated Sludge
RAZ	Regional Analysis Zone
SPA	Special Planning Area
USF	Underground Storage Facility
WAPA	Western Area Power Administration
WRF	Water Reclamation Facility
WWTP	Wastewater Treatment Plant

Requirement	Summary of How Requirements are Addressed	Page	Heading
AUTHORITY			
Proposed Designated Management Agency (DMA) shall self-certified that it has the authorities required by Section 208©(2) of the Clean Water Act to implement the plan for its proposed planning and service areas. Self-Certification shall be in the form of a legal opinion by the DMA or entity attorney. The City of Surprise is the Designated Management Agency for the Surprise Municipal Planning Area. Please refer to Appendix C of the <u>MAG 208 Water Quality Management Plan</u> , October 2002.			
20-YEAR NEEDS			
Clearly describe the existing wastewater treatment (WWT) facilities:			
• Describe existing WWT facilities.	There are no existing WWT facilities in the SPA 5 service area.	2	I.A
• Show WWT certified service areas for private utilities and sanitary district boundaries, if appropriate.	There are no private utilities or private sanitation districts within SPA 5.	2	I.A
Clearly describe alternatives, the recommended WWT plan, and factors that affect discharge:			
• Provide POPTAC population estimates (or COG-approved estimates only where POPTAC not available) over 20-year period.	POPTAC estimates that the City of Surprise population in 2010 will be 149,900. The City of Surprise General plan estimates that the population of SPA 5 will grow to 49,770 at final buildout.	5,6	I.C.2.
• Provide wastewater flow estimates over the 20-year planning period.	The total 20-year wastewater flow projection for the SPA No. 5 Regional WRF service area is 8 MGD, based on a total build-out population of 49,770.	5,6	I.C.2.
• Illustrate the WWT planning and service areas.	The proposed SPA 5 Regional WRF will provide wastewater treatment services for approximately 29,126 acres composing SPA 5. The service area for the proposed SPA 5 Regional WRF will be completely within the City of Surprise Municipal Planning Area as illustrated in <i>Figure 2</i> .	3	Figure 2
• Describe the type and capacity of the recommended WRF.	The SPA No. 5 Regional WRF will include an activated sludge type biological nutrient removal (BNR) treatment system with advanced tertiary treatment compatible with ADEQ Title 18 Class A+ effluent standards. The facility will be equipped with screening, grit removal, biological BOD reduction and nitrification/denitrification, clarification, filtration, and UV disinfection. The facility will also	6,7	I.C.3 and Appendix B Contains Design Calculations

Requirement	Summary of How Requirements are Addressed	Page	Heading
	incorporate sludge storage, treatment, and processing capability. Odor and noise control and aesthetic measures will also be incorporated into the design in accordance with the Title 18 Arizona Administrative Code. Odor control will be provided on tankage, equipment, and the sludge processing area. The first phase of the SPA 5 Regional WRF will provide 1.2 MGD average daily flow treatment capacity (2.4 MGD peak day and 3.6 MGD peak hour). Phased expansions of the facility will ultimately provide the full-build out capacity estimated not to exceed 8 MGD average day flow. This amendment addresses all phases (full-build out) of the SPA 5 facility.		
<ul style="list-style-type: none"> Identify water quality problems, consider alternative control measures, and recommend solution for implementation. 	By complying with ADEQ Title 18 Class A+ effluent standards, no foreseeable water quality issues are anticipated due to the use of SPA No 5's reclaimed water. The effluent water will be of sufficient quality for unrestricted reuse. Also, the total nitrogen and coliform limits for Class A+ effluent are below the applicable water quality standards for groundwater recharge.	8	I.C.3.c
<ul style="list-style-type: none"> If private WWT utilities with certificated areas are within the proposed regional service area: define who (municipal or private utility) serves what area and when. Identify whose sewer lines can be approved in what areas, when? 	The proposed service area does not overlap any current WWTP or WRF service areas. The City of Surprise is sponsoring this amendment in order to reduce the impacts that uncoordinated development may have on the groundwater quality and the City's existing wastewater treatment systems. Once the treatment facility and sewer lines are completed per the City's Sewer Master Plan, they will come under the ownership of the city. Additional treatment facility service areas in the neighboring City of Peoria or Town of Buckeye will not be impacted by the City of Surprise SPA 5 Regional WRF.	9	I.C.4.
<ul style="list-style-type: none"> Describe method of effluent disposal and reuse sites (if appropriate). 	Effluent from all phases of the SPA 5 Regional WRF is anticipated to be reclaimed for landscape and open space irrigation; excess effluent will be used for groundwater recharge through percolation basins	6	I.C.3.

Requirement	Summary of How Requirements are Addressed	Page	Heading
	(location to be determined). An Aquifer Protection Permit (APP) and potentially an ADWR Constructed Underground Storage Facility permit will be provided as needed for groundwater recharge. An AZPDES Permit may be sought to allow for additional discharge points to the Hassayampa River, to the Trilby Wash or an unnamed wash east of the WRF (in the southwest corner of Section 36 T5N R3W of the Gila and Salt River Base Meridian).		
<ul style="list-style-type: none"> Describe other wastewater treatment options that were considered. 	<p>Two alternatives were considered:</p> <p>Alt. #1 – Provide additional sewerage collection and effluent distribution piping and conveyance to transport flows to and from existing or other proposed plants in City of Surprise or in nearby Peoria. Additional treatment infrastructure would likely be necessary to provide for significant increases in loading from the new service area.</p> <p>Alt. #2 – Provide new wastewater collection and treatment facilities within the service area via the SPA 5 Regional WRF – owned and operated by the City of Surprise. Use effluent on-site for reuse and for groundwater recharge.</p>	2,4	I.B.
<ul style="list-style-type: none"> If Sanitary Districts are within a proposed planning or service area, describe who services the Sanitary Districts and when. 	There are no sanitary districts within the proposed service area.	9	I.C.4.
<ul style="list-style-type: none"> Describe ownership of land proposed for plant sites and reuse areas. 	The SPA 5 Regional WRF will be located on property that will be owned by the SPA No. 5 development group. Following the construction and operational acceptance of facility (which is dependent on the growth of the development and can be from 6 months to a year), the City of Surprise will own and operate the Phase I WRF.	4	I.C.1.
<ul style="list-style-type: none"> Address time frames in the development of the treatment works. 	Phase I of SPA 5 Regional WRF is expected to be substantially complete in Second Quarter 2007. The Phase I facility will have separate equipment and	10	II.A. Appendix C

Requirement	Summary of How Requirements are Addressed	Page	Heading
	control measures incorporated into the plant to treat low-flows: 1) vault-and-haul <20,000 gallons per day (gpd)) and 2) temporary equipment treating <120,000 gpd until development is able to provide larger loadings required for full-facility operation. Additional facility phases for the SPA5 Regional WRF are anticipated to be designed when average day wastewater flows exceed 70% of the current plant capacity. The timing of future subsequent expansions will therefore be dependent on rates of population and resultant wastewater flow increases.		
<ul style="list-style-type: none"> Address financial constraints in the development of the treatment works. 	There are no foreseeable financial constraints associated with the Regional WRFs' design, construction, and operation other than enabling the development to be competitive within the greater Phoenix, AZ market.	11	III.A. Appendix D
<ul style="list-style-type: none"> Describe how discharges will comply with EPA municipal and industrial stormwater discharge regulations (Section 405, CWA). 	All stormwater generated within the project sites will be detained on-site following completion of construction (zero stormwater discharge will occur from the property of the SPA 5 Regional WRF). During construction, flows will be discharged from the site under an AZPDES temporary construction discharge permit. A Stormwater Pollution Prevention Plan (SWPPP) will be implemented to accompany the discharge permit.	9	I.C.3.d
<ul style="list-style-type: none"> Describe how open areas and recreational opportunities will result from improved water quality and how these will be used. 	Effluent irrigation provides the ability to grow plants and grass for aesthetics and provide recreation such as golf, soccer, baseball, etc. for residents.	7	I.C.3.c
<ul style="list-style-type: none"> Describe potential use of lands associated with treatment works and increased access to water-based recreation, if applicable. 	Not Applicable	NA	NA
REGULATIONS			
<ul style="list-style-type: none"> Describe types of permits needed, including NPDES, APP and reuse 	The new WRF will require an Aquifer Protection Permit (APP), a MCESD Non-title V air quality permit, MCESD Annual Operations Permit, MCESD Approval to Construct (ATC), MCESD Approval of Construction	9	I.D.

Requirement	Summary of How Requirements are Addressed	Page	Heading
	(AOC), and potentially ADEQ effluent reuse, ADWR Underground Storage and Recovery, AZPDES permits (dependent on future reuse and/or discharge sites). Possibly an ACOE Clean Water Act 404 permit will be needed if site construction exists within a water of the U.S.		
<ul style="list-style-type: none"> Describe restrictions on NPDES permits, if needed, for discharge and sludge disposal. 	<p>If an AZPDES permit is sought for an alternative effluent discharge location, no unattainable restrictions on the permit are anticipated provided the facility is in compliance with ADEQ Title 18 Class A+ water quality standards. The expected water quality requirements are as follows:</p> <ul style="list-style-type: none"> Turbidity < 2 NTU (24 hour mean) Turbidity < 5 NTU (any time) Fecal Coliform = none detected (4 of 7 samples) Fecal Coliform < 23 CFU/100mL (any time) Total Nitrogen < 10 mg/L (5 day mean) 	8	I.C.3.c
<ul style="list-style-type: none"> Provide documentation of communication with ADEQ Permitting Section 30 to 60 days prior to public hearing regarding the need for specific permits. 	PERC, in conjunction with the City of Surprise and the developers, is in the process of obtaining necessary permits from ADEQ and potentially ADWR for the SPA 5. Attendance at an APP Pre-Application meeting is document in Appendix E		Appendix E
<ul style="list-style-type: none"> Describe pretreatment requirements and method of adherence to requirements (Section 208 (b)(2)(d), CWA). 	No industrial user will be connected to the system (only residential and commercial wastewater). If industrial users are added to the service area of the facility, a pretreatment program will be developed with the industrial user being subject to pretreatment standards as regulated by the EPA.	10	I.E
<ul style="list-style-type: none"> Identify, if appropriate, specific pollutants that will be produced from excavations and procedures that will protect ground and surface water quality (Section 208(b)(2)(K) and Section 304, CWA). 	Nutrient and metal pollutants typically bonded to sediment may be introduced by excavation during construction of the SPA 5. Storm water detention areas consisting of depressions or swales can effectively settle potential increases in suspended solids during construction.	11	II.B.

Requirement	Summary of How Requirements are Addressed	Page	Heading
<ul style="list-style-type: none"> Describe alternatives and recommendations in the disposition of sludge generated (Sections 405, CWA and 40 CFR 503). 	Sludge will be stored, treated, and dewatered on-site for the SPA 5 Regional WRF. Biological reactors will provide processes to significantly reduce pathogens and volatile solids composition. The facility will provide aerated storage, digestion, thickening, and dewatering capabilities. The facility will produce Class B biosolids for the remainder of the facility build-out. Treated and dewatered sludge from Phase I is anticipated to be landfilled. Class B bio-solids from subsequent phases can be reused for land application or fertilization of non-contact crops.	10	I.F
<ul style="list-style-type: none"> Define any non-point issues related to the proposed facility and outline procedures to control them. 	No non-point discharges are anticipated.	NA	NA
<ul style="list-style-type: none"> Describe process to handle all mining runoff, orphan sites, and underground pollutants, if applicable. 	Not applicable.	NA	NA
<ul style="list-style-type: none"> If mining related, define where collection of pollutants has occurred, and what procedures are going to be initiated to contain contaminated areas. 	Not applicable.	NA	NA
<ul style="list-style-type: none"> If mining related, define what specialized procedures will be initiated for orphan sites, if applicable. 	Not applicable.	NA	NA
CONSTRUCTION			
<ul style="list-style-type: none"> Define construction priorities and time schedules for initiation and completion. 	Construction is expected to be complete with the plant becoming operational by 2 nd Quarter 2007. Near the end of Phase I construction, the facility will be able to accept flows for vault-and-haul operation to the influent lift station up to 20,000 gallons per day (<70 housing units). Hauling will be provided to another PERC, Inc. operated facility. Following Phase I Approval of Construction by MCESD, the facility will accept wastewater flows into the main facility provided adequate loadings are available for low-flow processing. As average day flows exceed 70% of the facility's capacity (e.g. 840,000 gpd in Phase I), design of subsequent phases will be initiated, followed by	10	II. and Appendix C contains the draft construction schedule

Requirement	Summary of How Requirements are Addressed	Page	Heading
	construction as necessary. Construction priorities consist of equipment procurement and proper installation, quality control, and project coordination/documentation.		
<ul style="list-style-type: none"> Identify agencies that will construct, operate, and maintain the facilities and otherwise carry out the plan. 	PERC will construct, operate, and maintain the SPA 5 Regional WRF during the start-up and warranty period to be determined by the City. The City of Surprise will oversee all operation and maintenance services of the Regional WRF.	10	II.A.
<ul style="list-style-type: none"> Identify construction activity-related sources of pollution and set forth procedures and methods to control, to the extent feasible, such sources. 	The construction of the wastewater treatment plant will not be a significant source of pollution. Anticipated pollution from construction activities includes fugitive dust, construction equipment exhaust emissions, and construction related solid waste. Erosion control measures during construction and grading will be implemented to prevent potential storm water runoff to water bodies. The developer and project contractor shall comply with local and county regulatory requirements and provisions of construction permits issued including dust control permits.	11	II.B.
FINANCING AND OTHER MEASURES NECESSARY TO CARRY OUT PLAN			
<ul style="list-style-type: none"> If plan proposes to take over a certified private utility, describe how and when financing will be managed. 	Not applicable.	NA	NA
<ul style="list-style-type: none"> Describe any significant measure necessary to carry out the plan (e.g., institutional, financial, economic, etc.) 	The SPA 5 Developer Group includes Elliott Homes, Woodside Homes and Anderson Land, they will finance the design and construction of the Developer's Phase I of the SPA 5 Regional WRF. The SPA 5 Developer Group has provided a Joint Letter identifying their financial capability and assurances which is included in Appendix D. Elliott Homes has also provided additional financial assurances including a letter from a financial lending institution supporting Elliott Homes financial capabilities.	11	III.
<ul style="list-style-type: none"> Described proposed method(s) of community financing. 	Additional phased construction will be financed through development contribution/impact fees, in conjunction	11	III.

Requirement	Summary of How Requirements are Addressed	Page	Heading
	with City of Surprise capital improvement bonds and sewer system development fees.		
<ul style="list-style-type: none"> Provide financial information to assure DMA has financial capability to operate and maintain wastewater system over its useful life. 	The SPA 5 Developer Group has provided a Joint Letter identifying their financial capability and assurance in Appendix D. A memo from the City of Surprise stating the City's financial capability to operate and maintain the facility is shown in also in Appendix D.		Appendix D
<ul style="list-style-type: none"> Provide a time line that outlines the period of time necessary for carrying out plan implementation. 	Completion of the initial phase (Phase I) of the SPA 5 Regional WRF is anticipated to be 2 nd Quarter 2007. Subsequent phasing of the facility will be completed as dictated by wastewater generation and the rate of residential and commercial growth. Assuming 100% build-out in the service area, the estimated capacity of the facility is 8 MGD in 2020.	10	II.A. Appendix C
<ul style="list-style-type: none"> Provide financial information indicating the method and measures necessary to achieve project financing (Section 201 CWA or Section 604 may apply). 	Appendix D contains the Developer Group Joint Letter identifying financial capacity and assurances, Elliott Homes financial support by a financial lending institution, as well as the City of Surprise financial capabilities.		Appendix D
IMPLEMENTATION			
Describe impacts and implementation requirements of the Plan:			
<ul style="list-style-type: none"> Describe impacts on existing WWTFs (e.g., Sanitary district, infrastructure/facilities, and certificated areas). 	No existing infrastructure or facilities exist within the SPA 5 service area.	11	I.V.A
<ul style="list-style-type: none"> Describe how and when existing package plants will be connected to a regional system. 	Currently no plants exist in the proposed service area which would be connected to the proposed SPA 5 Regional WRF regional system.	NA	NA
<ul style="list-style-type: none"> Describe the impact on communities and businesses affected by the plan. 	There are no anticipated negative impacts to the community or businesses due to this plan. Positive impacts expected for the community and businesses include wastewater collection services, aquifer recharge with potential subsequent indirect reuse, and	11	I.V.A.

Requirement	Summary of How Requirements are Addressed	Page	Heading
	potential direct reuse.		
<ul style="list-style-type: none"> If a municipal WWT system is proposed, describe how WWT service will be provided until the municipal system is completed (i.e., will package plants and septic systems be allowed and under what circumstances; interim services). 	Houses will not be occupied prior to the completion and approval of the low-flow portions of the SPA 5 Regional WRF (vault-and-haul operation for flows < 20,000 gpd in the lift station and temporary equipment/controls for flows exceeding 20,000 gpd but less than 120,000 gpd).	10	II.A
PUBLIC PARTICIPATION			
<ul style="list-style-type: none"> Submit copy of mailing list used to notify the public of the public hearing on the 208 amendments. (40 CFR, Chapter 1, part 25.5) 	All public notifications will be satisfied through MAG.	12	V.
List location where documents are available for review at least 30 days before public hearing.	All public notifications will be satisfied through MAG.	12	V.
<ul style="list-style-type: none"> Submit copy of the public notice of the public hearing as well as an official affidavit of publication from the area newspaper. Clearly show the announcement appeared in the newspaper at least 45 days before the hearing. 	All public notifications will be satisfied through MAG.	12	V.
<ul style="list-style-type: none"> Submit affidavit of publication for official newspaper publication. 	All public notifications will be satisfied through MAG.	12	V.
<ul style="list-style-type: none"> Submit responsiveness summary for public hearing. 	All public notifications will be satisfied through MAG.	12	V.

The Maricopa Association of Governments (MAG) is the Designated Planning Agency with the authority under Section 208(a)(2)(B) of the Clean Water Act (CWA) to prepare the Regional Water Quality Management Plan for the Maricopa County Planning Area. The purpose of this application is to request a Clean Water Act Section 208 amendment to the current Regional Water Quality Management Plan to facilitate the inclusion of the City of Surprise SPA No. 5, 8.0 MGD Regional WRF. The requested amendment includes the following:

Figure 1. Vicinity Map

The map shows the Phoenix metropolitan area and surrounding regions. Key features include:

- Highways:** I-10, I-17, SR-51, SR-303, SR-101, SR-85, SR-60, SR-347.
- Cities and Towns:** Phoenix, Scottsdale, Mesa, Tempe, Chandler, Gilbert, Avondale, Goodyear, Buckeye, Sun City, Surprise, Sun City West, El Mirage, Litchfield Park, Glendale, Peoria, Anzalone, Paradise Valley, Salt River Indian Reservation, Fountain Hills, Cave Creek, Carrizo, Monticton, Sun Lakes.
- Landmarks:** Lake Pleasant, Tonto National Forest, Salt River Indian Reservation, Gila River Indian Reservation, Consolida, Power, Higley.
- Specific Location:** A box labeled 'GPA 5 WRF' with an arrow pointing to a location in the northern part of the map, near Sun City West and Surprise.

The SPA No. 5 Development Group (Elliott Homes, Wittman 510 LLC, and Anderson Land) will finance the design and construction of the Phase I SPA No.5 Regional WRF. Phase I will have an average day capacity of 1.2 MGD, and subsequent phasing will provide treatment up to 8.0 MGD average day flow at full build-out. Phasing of the facility beyond Phase I will be dependent on rates of population growth and corresponding wastewater loading increases. To conserve time, the developers have opted for a design/build approach for the initial phase of this facility. Pacific Environmental Resources Corp. (PERC) has been selected by the SPA No. 5 Development Group as the design/build/operator. Preliminary engineering design of Phase I is

currently proceeding. The facility is expected to be completed and operational by Second Quarter 2007.

Following the commissioning of the facility and startup period, the developers will transfer ownership of the facility along with operation responsibilities to the City of Surprise. After 70% of the Phase I wastewater flow design capacity is achieved, future phases designs will be initiated.

The following sub-sections describe existing wastewater facilities, considered alternatives for wastewater from future developments, the proposed wastewater collection and treatment system, and regulatory requirements for implementation.

A. Description of Existing Wastewater Treatment Facilities

The 29,126 acre SPA No.5 Regional WRF service area is located within RAZ 204 and 211 within the City of Surprise. The location of the City of Surprise existing WWTP is illustrated on *Figure 2*. Proposed and existing facilities in the surrounding area are also illustrated. There are no existing sewerage collection systems or treatment facilities within the proposed SPA No.5 service area. Nearby facilities were described in the existing MAG 208 and are summarized below.

The existing south Surprise WWTP is approximately 10 miles from the proposed SPA No.5 Regional WRF and is expected to reach its full capacity of 36 MGD from serving Special Planning Area 1. Its capacity does not include flows from the SPA No.5 service area. Nearby wastewater treatment facilities in Peoria are designed to accommodate wastewater generated at related developments and are not capable of serving the wastewater generated by the SPA No.5 service area.

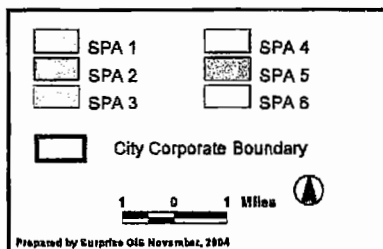
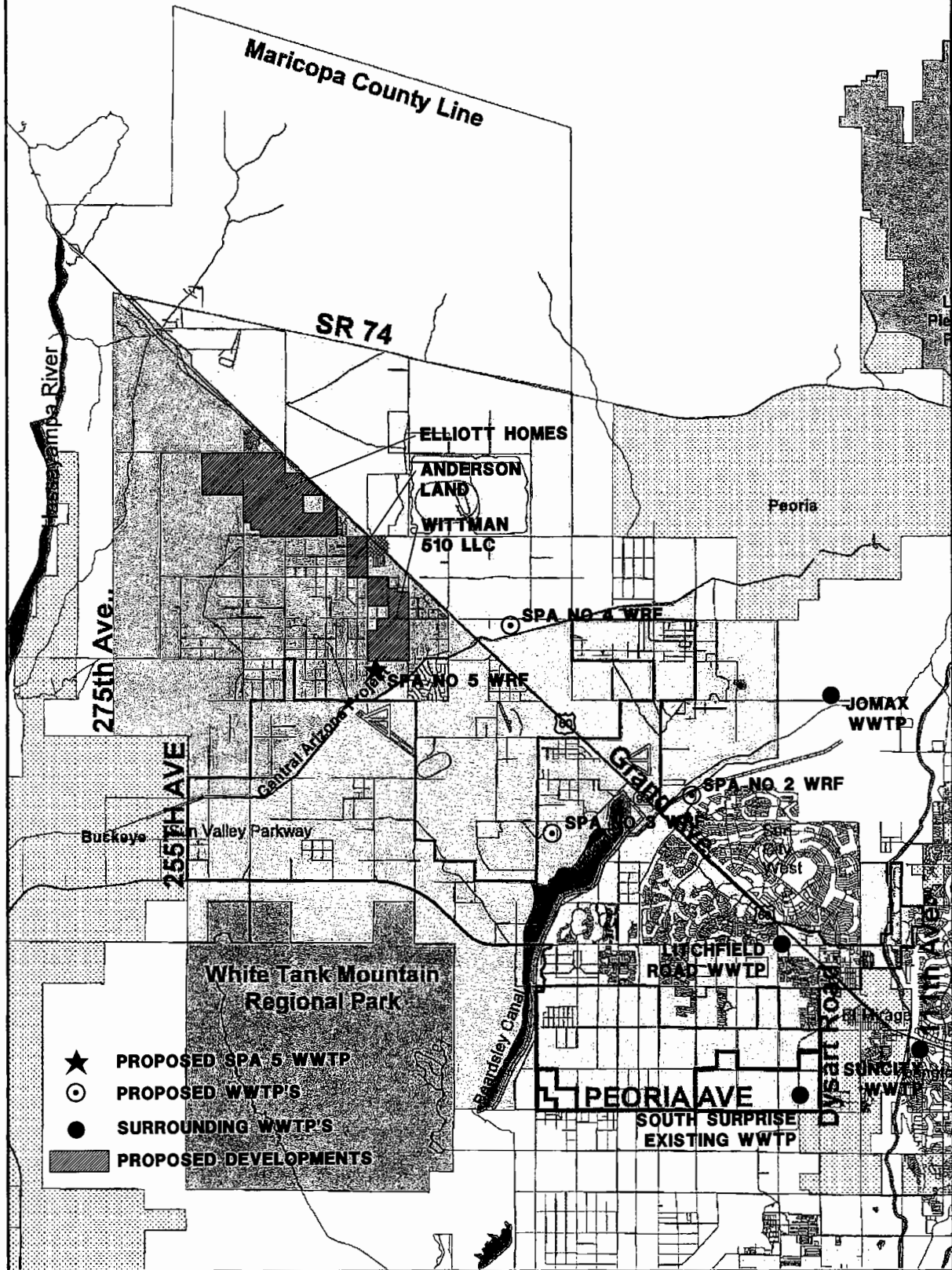
The MAG 208 for SPA 2 and 3 with a build-out capacity of 10.5 MGD and 30 MGD, respectively, has been approved. In addition, SPA 4 is in the process of initiating a MAG 208 amendment for an ultimate build-out capacity of 8.0 MGD.

B. Summary of Alternatives

The following two alternatives were considered to evaluate the wastewater treatment from the proposed SPA No.5 WRF service area.

Alternative 1:

Providing wastewater collection and pumping infrastructure to convey flows to existing or proposed facilities in the City of Surprise (SPA No.2, 3, or 4) or in nearby Peoria. Increases in flow to the existing facilities would necessitate unplanned expansion and redesign of future phases of treatment works based on loading increases from the 29,126-acre service area.



Special Planning Areas (SPA)

Figure 2

Surprise General Plan 2020:
Imagine the Possibilities
City of Surprise, AZ



Alternative 2:

Implementing a new wastewater collection system and treatment facility to effectively treat and reuse/ recharge wastewater flows from proposed developments within the region.

Alternative 2 (building the new SPA No.5 Regional WRF) was selected over Alternative 1 (conveying wastewater and effluent flows to/from existing and other proposed facilities) since it complies with the City of Surprise General Plan 2020 and is more beneficial than Alternative 1 with respect to cost-effectiveness and water supply management to increase supply for sustainable development. Since a majority of the needed treatment infrastructure and corresponding equipment to accommodate the new service area will need to be constructed at existing or other potential facilities in Alternative 1, negligible savings can be realized by diverting flows to other treatment plants in the area. By retaining wastewater flows within the SPA No.5 region, benefits can be realized from non-potable reuse, such as landscape and open space irrigation, and from groundwater recharge of the underlying aquifers, providing the benefit of recharge credits to the City. In addition, cost savings and supply benefits can be achieved from using reclaimed water within the 29,126 acre service area instead of using existing ground and surface water supplies. Assuming effluent could be returned to the SPA No.5 region using Alternative 1, the cost of implementing effluent distribution systems will be considerably larger in magnitude (piping and pumping capacity) and therefore more costly than building a new facility on-site. In addition, collection system piping and potential pump stations needed to convey wastewater will be considerably smaller, if not non-existent, by building a new facility on-site. By implementing a similar hybrid SBR treatment facility to that of the nearby Sundance, Tartesso (both Town of Buckeye) and the proposed SPA 2, 3 & 4 WRFs, operation and maintenance of the proposed SPA No.5 Regional WRF will be familiarized.

C. Description of Proposed Construction of the SPA No.5 Regional WRF

1. Site Location, Property Ownership, and Service Area

The proposed SPA No.5 Regional WRF will be constructed within the Municipal Planning Area for the City of Surprise, Arizona. The proposed WRF location is approximately 75 acres and is in the southwest corner of section 36 township 5N and range 3W. Future build-out needs of the site are also being evaluated by the City. *Appendix A* provides a map which illustrates the proposed location of the treatment facility. The SPA No.5 Regional WRF will be constructed on state land that will be purchased by the SPA No. 5 Development Group and subsequently deeded over to the City. The property will be ultimately transferred to the City of Surprise for the purpose of maintaining and operating the facility. The Regional WRF facility will service an estimated 29,126 acres of land within the City of Surprise encompassing SPA No.5.

2. Population, Water Supply, and Wastewater Generation Estimates

As stated previously, 29,126 acres in Regional Analysis Zones 204 and 211 were used to define the SPA No.5 WRF service area. This boundary was determined by the City of Surprise in advance of the planning currently being undertaken by the SPA No. 5 Development Group. 1443 lots on this land are being purchased from the current owners by Wittman 510 LLC and will be used to site the proposed Walden Ranch development. 2124 lots on this land are being purchased from the current owners by Elliott Homes and will be used to site the proposed Broadstone Ranch development. 383 lots on this land are being purchased from the current owners by Anderson Land and will be used to site the proposed Rancho Maria development. The remaining portion of SPA No. 5, once developed, will also be serviced by the SPA No.5 Regional WRF in keeping with the current Surprise General Plan 2020 and the approved Integrated Water Master Plan. Future developments within the SPA No. 5 service area will ultimately be serviced by the Regional WRF in the City's future phases. *Figure 2* illustrates the Regional WRF service area (SPA No. 5) and the proposed developments.

There are two sources of population estimates available for the SPA No. 5 service area. City of Surprise planning area population and wastewater flow projections were included in the October, 2002 MAG 208 Plan (reproduced in *Table 1*); however, these populations consider the entire City planning area. They are not representative of the population growth to be expected within the SPA No.5 service area itself.

Table 1
Surprise Population and Flow Projections
MAG 208 Water Quality Management Plan Update

Year	Population	Flow (MGD)
2000	36,500	3.65
2005	80,500	8.02
2010	149,900	18.00
2015	236,900	23.69
2020	315,100	31.51

(Source: October, 2002 MAG 208 Water Quality Management Plan)

A second source of population estimates is found in the Surprise General Plan 2020. This plan was ratified by public vote on March 13th 2001. It contains a table, (reproduced in *Table 2*) for the SPA No.5. The table is built on the assumption that each household contains 2.82 persons.

Table 2
SPA No.5 Population Projections
Surprise General Plan 2020

Land Use	Build Acreage	DU/acre Mid-range	Total Dwelling Units	Population
Rural Residential (0-1 DU/ac.)	27,526	0.50	13,763	38,812
Suburban Residential (1-3 DU/ac.)	1,257	2.0	2,514	7,089
Low Density Residential (3-5 DU/ac.)	343	4.0	1,372	3,869
Medium Density Residential (5-8 DU/ac.)	0	0	0	0
Medium High Density (8-15 DU/ac.)	0	11.5	0	0
High Density Residential (15-21 DU/ac.)	0	18	0	0
Total	29,126	-	17,649	49,770

The population given here is designed to represent the service area population at full build out. This is assumed to occur in or before year 2020, however, no more specific growth related time frames are given.

Table 2 population estimates were used to base the wastewater generation for the proposed SPA No.5 Regional WRF. Using a conservative wastewater generation rate of 100 gpd/person, it is reasonable to expect that 5.0 MGD of wastewater will be generated on average. Due to the possibility of an increase in population in the SPA No. 5 Regional WRF service area that is beyond the projections of the Surprise General Plan 2020, the WRF will be expandable to handle up to 8.0 MGD.

The Phase I water reclamation facility will service the three proposed development which contain a total of 3,950 lots. Using the same assumption of 2.82 persons per household, the total population within the developments is 11,139 people. Therefore, the expected wastewater generation is 1.1 MGD (100 gpd/person).

The Phase I WRF will be designed for a treatment capacity of 1.2 MGD based on a loading of 300 mg/L BOD and TSS and 40 mg/L Total Nitrogen. Therefore, the equivalent flow is approximately 304 gpd/DU.

3. Water Reclamation Facility Description

Consistent with treating wastewater flows to ADEQ Title 18 Class A+ effluent standards, the SPA No.5 Regional WRF design will implement multi-stage, redundant treatment mechanisms consisting of physical and biological means. The facility will be equipped with advanced control systems to allow for enhanced operational capabilities and alarming. Back-up power and manual override systems are also incorporated into the design for emergency scenarios.

A treatment schematic for the Phase I SPA No.5 Regional WRF is included in *Appendix B*. The design is the PERC ASP design for an activated sludge process within hybrid sequencing batch reactors (SBRs) for secondary removal of organics and nutrients. The

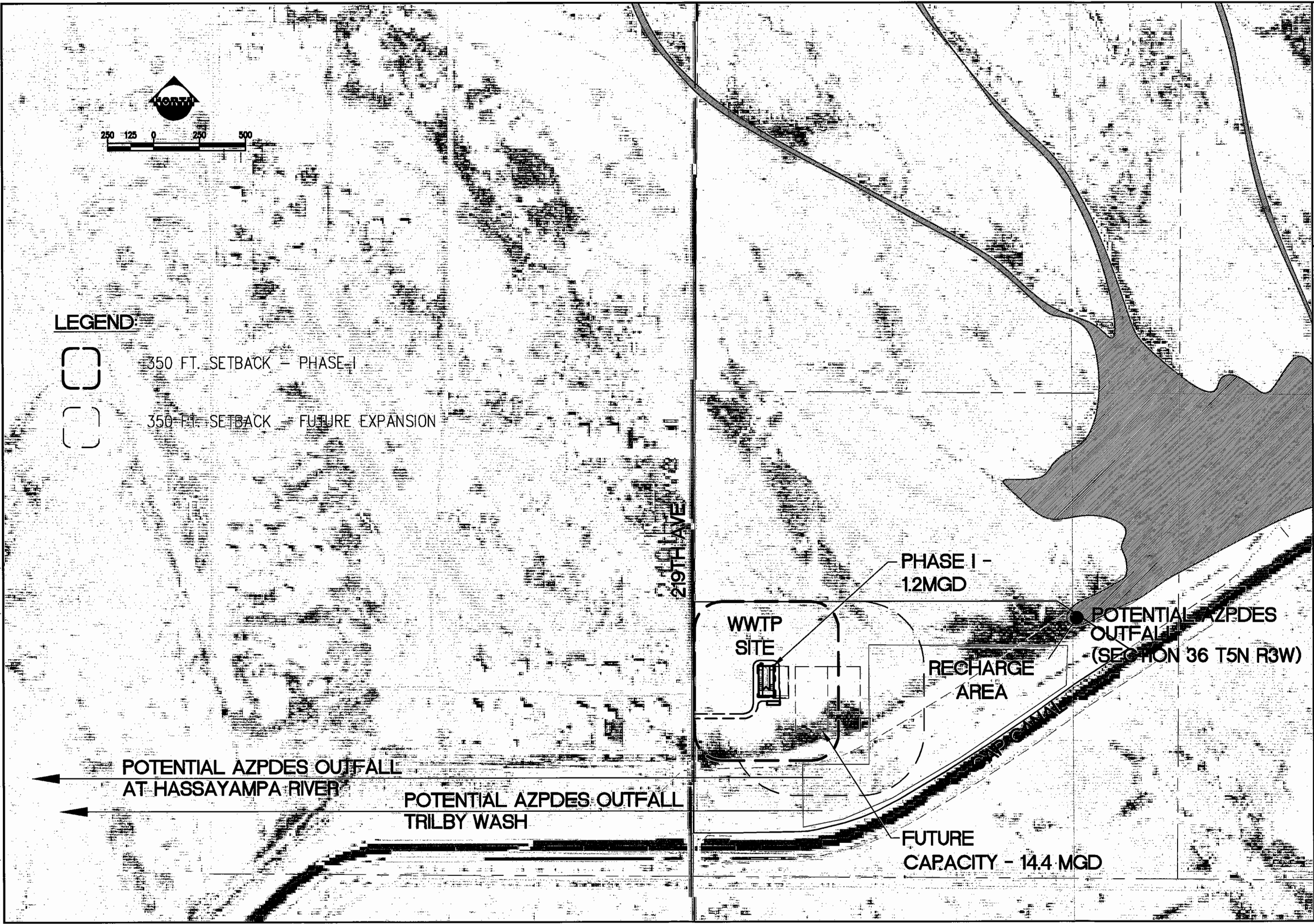
SBRs will be completely enclosed and implement noise and odor control features. As typical with conventional SBRs, the treatment process will utilize anoxic mixing, aerobic mixing, and static reaction capabilities to provide biological oxidation, nitrification, denitrification, and clarification within each reactor tank. The PERC ASP design includes an additional anoxic pre-reactor which provides flow equalization, denitrification, and biological selection. The design also achieves optimal treatment efficiency and significant ease of operation. The hybrid mechanism allows for efficient foam and scum removal from the SBR during return activated sludge (RAS) periods. Preceding primary treatment within the facility, screening and grit removal will take place within covered and odor-controlled headworks areas. Following the secondary processes, the facility will utilize tertiary treatment capabilities including a surge basin, filtration, and UV disinfection equipment. To provide process redundancy and obtain a Phase I average-day capacity of 1.2 MGD, four reactor tanks (two SBR reactors and two anoxic pre-reactors) will be constructed in Phase I.

Wastewater will be treated to exceed the current ADEQ Title 18 requirements for unrestricted irrigation reuse or recharge. The Phase I plan for effluent includes reuse for irrigation of common areas, such as public landscapes, public parks, etc. Effluent may be stored in lined lakes and water feature amenities prior to distribution for irrigation. Reclaimed water reuse will be encouraged for non-potable water applications. A Groundwater Savings Facility Permit will be sought for those reuse applications which reduce groundwater withdrawals. During times when reclaimed water is produced in excess of irrigation demands, water may be discharged to percolation basins adjacent to the facility under ADEQ's APP and the Arizona Department of Water Resource's (ADWR) Underground Storage Facility (USF) permit programs. Finally, an AZPDES Permit may be sought to allow for additional discharge points to the Hassayampa River, to the Trilby Wash or an unnamed wash east of the WRF (in the southwest corner of Section 36 T5N R3W of the Gila and Salt River Base Meridian) (see Figure 3 for potential discharge locations).

The SPA No.5 Regional WRF will generate waste sludge which will be directed to an aerated digester reactor for biological conversion for volumetric sludge reduction, pathogen removal, and bio-solids conditioning. The sludge digestion process will ultimately provide pathogen and vector attraction reduction equivalent to the EPA Title 40 CFR 503 regulations for Class B biosolids. Biosolids will be dewatered, stored, and hauled to either a landfill for disposal or biosolids reuse areas.

a. Facility Capacity

The SPA No.5 Regional WRF will have an maximum month average day (MMAD) capacity for Phase I of 1.2 MGD with modular phased expansions which will treat potentially 8.0 MGD MMAD at full build-out. The phasing of the facility will be dependent on population and development growth rates from the service area. The modular design of the facility will allow efficient implementation of subsequent phases to the SPA No.5 Regional WRF. Both the Developer's Phase I and subsequent City phases will be capable of processing peak day and peak hour flows into the facility.



TITLE		PROPOSED DISCHARGE LOCATIONS MAP	
SPA NO. 5		AZ	
REGIONAL WRF		SURPRISE	
JOB NO. 8244-E		FIGURE 03	
SCALE 1"=500'	DESIGNED L.H.	DRAWN C.L.P.	CHECKED D.T.D.
			DATE 2/21/06
			JOB NO. 8244-E
PACIFIC ADVANCED CIVIL ENGINEERING 17520 NEWHOPE STREET, SUITE 200 JUNEAU, ALASKA 99801 PH (907) 481-7300 FAX (907) 481-7299			

b. Site Description

The proposed location of the SPA No. 5 WRF is the southwest corner of section 36 T05N R03W. The proposed site is undeveloped, uninhabited desert. The site slopes generally to the southeast and will be elevated above the 100-year flood plain. The Beardsley Canal is located south of the proposed WRF. It runs along a northeast southwest directional. The closest paved road to the site at this time is US Hwy 60, which runs northwest/southeast approximately 2 miles from the site of the proposed SPA No.5 Regional WRF.

c. Water Reclamation Requirements

Treated effluent from the SPA No.5 Regional WRF will be reclaimed for non-potable water reuse and potentially storage and recovery via an ADWR permit. In addition, an AZPDES Permit may be sought to allow for additional discharge points to the Hassayampa River, to the Trilby Wash or an unnamed wash east of the WRF (in the southwest corner of Section 36 T5N R3W of the Gila and Salt River Base Meridian) in the event that effluent flow rates exceed the capacity of the recharge basins. Therefore, the need for the AZPDES permit will be dependent on the growth of the development.

The treated effluent will meet ADEQ Title 18, Chapter 11 requirements for Class A+ reclaimed water for unrestricted irrigation of reclaimed effluent, for use of groundwater recharge, and potentially for discharge through a AZPDES Permit. Class A+ reclaimed water including the following requirements:

1. Wastewater must undergo treatment via the following mechanisms:
 - Secondary treatment, filtration, nitrogen removal, and disinfection
 - Chemical feed capabilities are mandatory to allow coagulation prior to filtration and disinfection to ensure low turbidity (see below)
2. Effluent water quality must conform to the following:
 - Turbidity < 2 NTU (24 hour mean)
 - Turbidity < 5 NTU (any time)
 - Fecal Coliform = none detected (4 of 7 samples)
 - Fecal Coliform < 23 CFU/100mL (any time)
 - Total Nitrogen < 10 mg/L (5 day mean)

d. Stormwater Discharges

The SPA No.5 Regional WRF will be designed to contain all stormwater runoff onsite. Thus, after completion of construction, the facility is not expected to produce stormwater discharges. During construction, an ADEQ permit for construction related stormwater discharges will be sought under the Arizona Pollutant Discharge Elimination System (AZPDES) program. A Stormwater Pollution Prevention Plan (SWPPP) will be implemented to accompany the discharge permit.

e. Plant Overflow

The SPA No. 5 Regional WRF will be designed with full redundancy and safe guards to prevent any overflow of wastewater from the WRF to the surrounding areas.

4. Existing Sanitary Districts, Private Utilities, and WRF Service Areas

No negative impact to existing treatment facilities, sanitary districts, or certified service areas are expected due to the commissioning of the SPA No.5 Regional WRF, based on the proposed location. The proposed service area does not overlap any current sanitary districts, WWTP or WRF service areas. The City of Surprise is sponsoring this amendment in order to reduce the impacts that uncoordinated development may have on the groundwater quality and the City's existing wastewater treatment systems. Additional treatment facility service areas in the neighboring City of Peoria and Town of Buckeye will not be impacted by the SPA No.5 Regional WRF.

D. Permitting Requirements

The SPA No.5 Regional WRF will require the following permits and clearances:

- Aquifer Protection Permit (APP) issued by the Arizona Department of Environmental Quality (ADEQ) for reclaimed water and sludge disposal
- Maricopa County Environmental Services Division (MCESD) Non-title V Air Quality Permit
- MCESD Approval to Construct (ATC) and Approval of Construction (AOC)
- MCESD Annual Operations Permit
- Archeological and Native Plants clearances through the Arizona State Land Department, and an Environmental Assessment – Phase I clearance

And Potentially:

- Underground Storage Facility and Recovery Permit by the Arizona Department of Water Resources (ADWR)
- ADEQ Reclaimed Wastewater Reuse Permit
- ADEQ AZPDES Permit
- ACOE Clean Water Act (CWA) 404 Permit

E. Pretreatment Requirements

The Code of Federal Regulations Part 403 Section 403.8 states, “any POTW with a total design flow of 5 million gallons per day and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards, will be required to establish a pretreatment program.” No industrial users are anticipated to discharge into the proposed SPA No.5 Regional WRF. Thus, the facility is not required to comply with pretreatment requirements. If industrial users are added to the service area of the facility, a pretreatment program will be developed with the industrial user being subject to pretreatment standards as regulated by the EPA.

F. Sludge Management Requirements

The SPA No.5 Regional WRF will be subject to biosolids regulations as promulgated in EPA 40 CFR 503. Sewage sludge, which is produced by the facility, is defined in 40 CFR 501 as any solid, semi-solid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or wastewater treatment, scum, septage, portable toilet waste, Type III Marine Sanitation device waste, and sewage sludge products. Sewage sludge does not include grit, screening, or ash generated during the incineration sewage. The 40 CFR 503 regulatory requirements include standards for the use and disposal of sludge and consist of general requirements, pollutant limits, management practices and operational standards for the final use or disposal of sewage sludge generated during the treatment of domestic sewage. It also includes pathogen and vector attraction reduction requirements for sewage sludge applied to land or placed in a surface disposal site.

Sludge produced at the facility will conform to the Class B biosolids standard for time and temperature (40 days retention time at 20 degrees C). By meeting the EPA requirements for sludge re-use, the biosolids produced at the facility will be available for use for restricted land application or fertilization of non-contact crops.

II. Construction

A. Construction and Operation Responsibility

The developers have selected Pacific Environmental Resources Corp. (PERC) to design/build/operate Phase I of the SPA No.5 Regional WRF. Construction of Phase I is anticipated to be completed by Second Quarter 2007 (the design and permitting phases of the project is anticipated to take approximately 9 months; construction will initiate thereafter). A draft construction schedule for the facility is included in *Appendix C*. Near the end of Phase I construction, the facility will be able to accept flows for vault-and-haul operation to the influent lift station up to 20,000 gallons per day (<70 housing units). Hauling will be provided to another PERC operated facility. Following Phase I Approval of Construction by MCESD, the facility will accept wastewater flows into the main facility provided adequate loadings are available for low-flow processing. As average day flows exceed 70% of the facility’s capacity (e.g. 840,000 GPD in Phase I), design of subsequent phases will be initiated, followed by construction as necessary.



Following the construction and acceptance of each phase of the facility, the City of Surprise will eventually own and operate the Phase I treatment facility. The City of Surprise will thereby be responsible for oversight of operation and maintenance of the facility. PERC will operate the WRF during the start-up and warranty periods as determined by the City.

B. Sources of Pollution

The construction of the wastewater treatment plant will not be a significant source of pollution. Anticipated pollution from construction activities includes fugitive dust, construction equipment exhaust emissions, and construction related solid waste. Erosion control measures during construction and grading will be implemented to prevent potential storm water runoff to water bodies. The developer and project contractor shall comply with local regulatory requirements and provisions of construction permits issued.

III. Financing and Other Actions to Implement Plan

A. Financing Plan

The SPA No. 5 development team has made financial plans for the construction and operation of the proposed SPA No.5 Regional WRF. The new facility will be constructed using private, tax exempt, and or developer/development funds. Once ownership of the WRF is transferred to the City of Surprise, the City will finance the operation of the WRF through development contribution, impact fees, and user fees in conjunction with the City of Surprise capital improvement bonds and sewer system development fees.

B. Financing Capability to Construct the Facility

The SPA No. 5 Development Group has the financial capacity to construct and operate the SPA No.5 Regional WRF. The MAG 208 Amendment draft includes a letter in *Appendix D* dated September 23rd, 2005 from the SPA 5 developer group, evidencing its commitment to allocate sufficient funds to the construction of the initial (developer-funded) 1.2 MGD phase of the SPA 5 Regional WRF. In addition, *Appendix D* also includes a letter from a financial lending institution dated April 10, 2006 supporting the financial backing needed to finance the construction of the WRF.

Prior to construction, the developer will cause to be posted performance bonds, letters of credit, and/or other financial assurances of construction acceptable to the City of Surprise, which will secure the full and complete construction of the developer-funded phase of the SPA 5 Regional WRF. It is proposed that MCESD's issuance of an Approval to Construct (ATC) for the developer-funded phase of the SPA 5 WRF be contingent upon the posting of the necessary financial assurances. In addition, a memo from the City of Surprise stating the City's financial capability to operate and maintain the WRF is shown in *Appendix D*.

IV. Impacts and Implementation Plan

A. Implementation Plan

The implementation of construction and operation of the water reclamation facility will be planned and executed by the developers in SPA No. 5. The SPA No. 5 Development Group has contracted with PERC to design/build/operate the Phase I SPA No.5 Water Reclamation Facility. PERC is a licensed contractor in the state of Arizona (AZ # 150360). The PERC design/build/operate team includes Arizona licensed engineers and Arizona certified wastewater facility operators. PERC will be contracted by the developers to operate the SPA No. 5 WRF during the Start-up period to ensure that the facility will operate as designed. Once the WRF is turn over to the City of Surprise, the City will have the option for PERC to continue operating the facility or to have Arizona certified City operators take over operation of the facility. Design completion for Phase I is anticipated to be completed by Second Quarter 2007. A draft schedule of construction for Phase I is provided in *Appendix C*.

B. Impacts of the Proposed Water Reclamation Plant

The construction and operation of SPA No.5 Regional WRF is not expected to adversely impact any neighboring municipality, sanitary district, certificated area, community or business. The Regional WRF will provide sewage treatment services for a 29,126 acre area within the City of Surprise, which will encourage residential and business growth.

Potential environmental issues include odor, noise, vectors and hazardous materials. The following briefly discuss and addresses these issues.

Odors: The plant will include odor-scrubbing systems for process equipment, tankage, and sludge processing areas. All process tanks are covered to maintain negative pressure on the odor-control system. All headworks and sludge processing equipment is housed inside buildings. In addition, wastewater and sludge in the SPA No.5 Regional WRF is aerobically treated which reduces ammonia, sulfide, and other odorous producing compounds.

Noise: All process equipment will be enclosed in insulated masonry buildings. Additionally, the aeration blowers will be provided with sound attenuation enclosures. All pumps and aerators will be submersible type and will minimize noise production.

Vectors: The treatment facilities will be properly operated and maintained to reduce vector attraction. Headworks equipment and sludge processing facilities will be covered and enclosed in building structures.

Hazardous Materials: The wastewater treatment facility will not accept any hazardous materials. Only municipal sewage from the SPA No.5 service area will be accepted. An emergency plan will be developed to isolate and contain any hazardous materials discovered. The proposed treatment system does not require the use of any hazardous materials beyond the use of activated carbon contained within the odor control system, polymers for sludge dewatering and diesel fuel

for the back-up power generator. A current set of Material Safety Data Sheets (MSDS) will be maintained for all chemicals, polymers, and bio-augmentation products used at the facility.

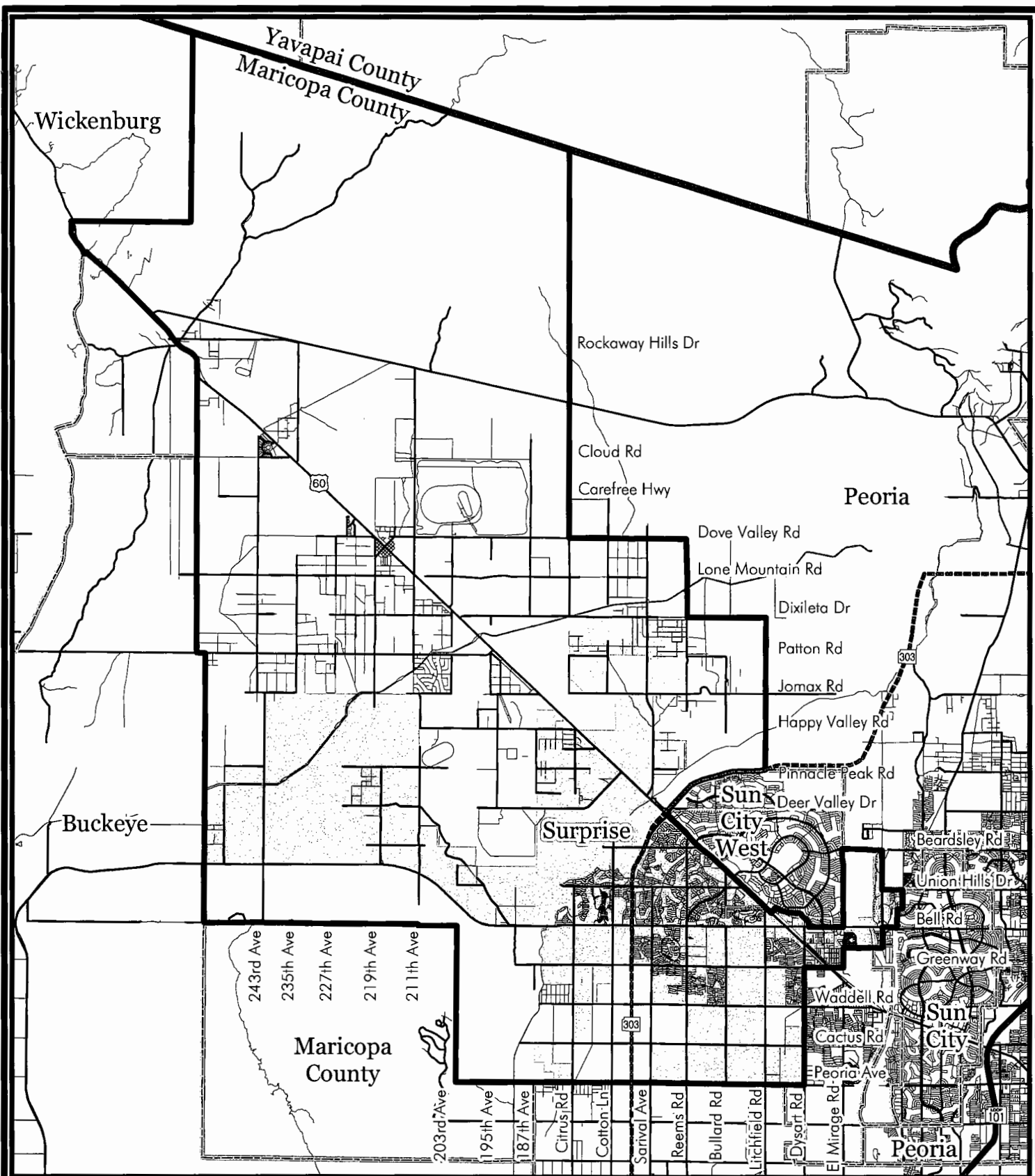
V. Public Participation

As part of the MAG Water Quality Management Plan Amendment Process, the Maricopa Association of Governments (MAG) with cooperation of the City of Surprise is responsible for ensuring that the following actions are implemented after submittal of the draft 208 Amendment:

- Notify all parties of a public hearing on the 208 Amendment by sending notices to interested parties at least 30 days prior to the public hearing. The notice may include the date, time, subject and location of the public hearing for the 208 Amendment.
- Notify public at least 45 days in advance of the public hearing by advertising in a publication. The notice should include the date, time, subject and location of the public hearing for the 208 Amendment.
- Notify public that draft amendments are available for public viewing 30 days before the hearing. This may include the location, days, and time of availability.
- Submittal of an affidavit of publication of the public notice.
- Submittal of a responsiveness summary for the public hearing.

Appendix A

Site Map and City of Surprise MPA Map



0 0.5 1 2 3 4 Miles

Legend

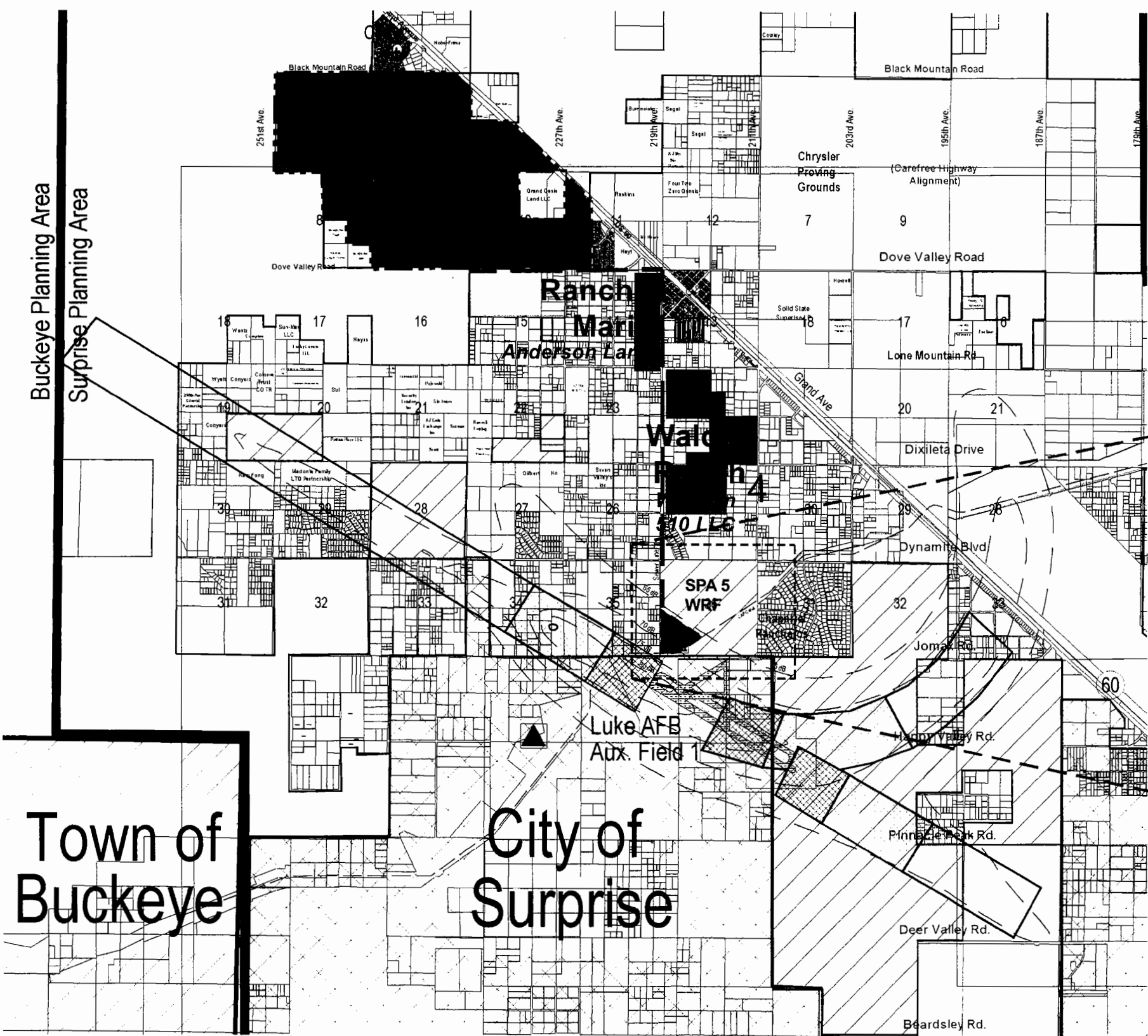
- Surprise Municipal Planning Area
- Surprise Incorporated Area
- Existing Freeways
- Planned Freeways
- Major Roads
- Other Streets



Surprise

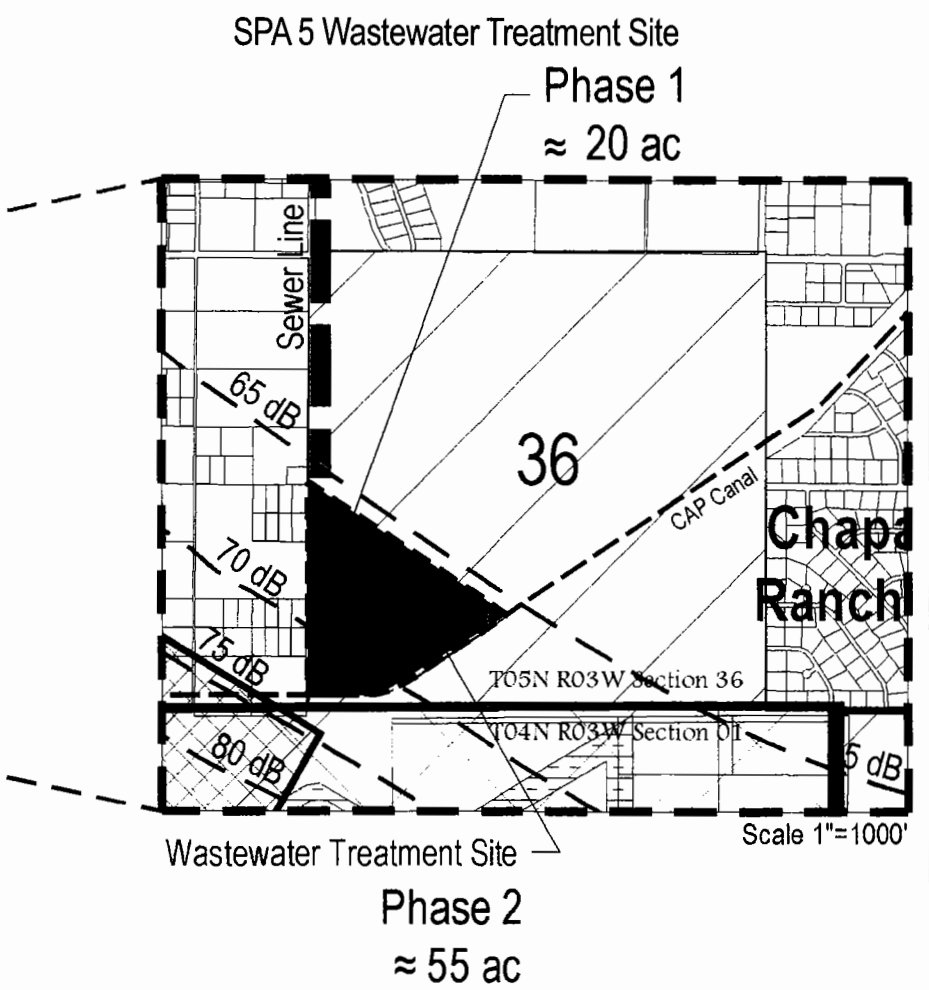
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Sources:
Municipal Planning Areas, MAG 2004
Incorporated Areas, Maricopa County Planning Department 2004



LEGEND

- Proposed Wastewater Treatment Site
- Project Boundary
- Sewer Line



SCALE: 0' 3000' 6000'

NORTH

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Date: 03.31.05
Job No: 037000695
Drawn: SG
Revised:

SPA 5 Proposed Wastewater Site

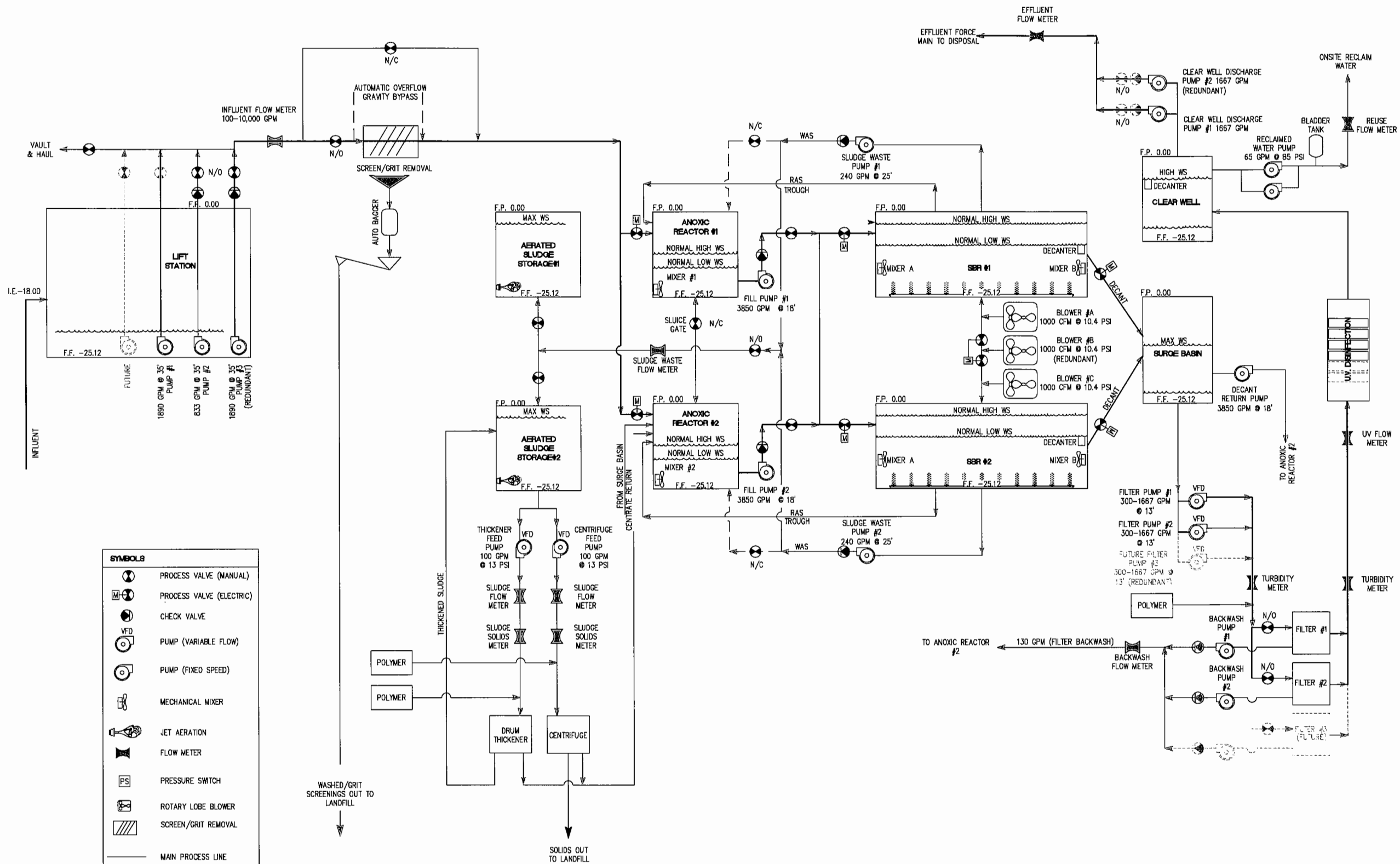
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Landscape Design

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Appendix B

SPA 5 WRF Process Design Information



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SPA NO. 5 WATER RECLAMATION FACILITY
PROCESS FLOW SCHEMATIC
PHASE 1A

PERC
Predit Environmental Resources Corp.
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SHEET
02
JOB NO. 8244-E

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**SPA 5 Water Reclamation Facility
Phase I
Design Calculations
Duong Do, P.E.
March, 2004**

**Calculation Methods Adapted from:
H. David Stensel, Ph.D., P.E.
University of Washington**

DESIGN CONDITION

Flow:

Average	1.2 Mgal/d
Peak Day	2.4 Mgal/d
Peak Hour	3.6 Mgal/d

Wastewater Parameters:

BOD5	300 mg/L
TSS	300 mg/L
TKN	40 mg/L

Plant Design Load:

BODs	3,003 lb/d
TKN	400 lb/d
Water Temp.	25° C
Ambient Air Temp.	38° C

Effluent Parameters:

BOD5	< 5.0 mg/L
TSS	< 5.0 mg/L
TN	< 10.0 mg/L
Turbidity	< 2 NTU
Coliform (FCU/100 ml.)	non-detect

PROCESS OPERATION (TWO AEROBIC SBR TANKS)

Operation description:

A sequencing batch reactor (SBR) is operated with alternating cycles, or sequences of fill, interact, react, settle, decant, and idle. The hybrid PERC-ASP SBR system for Phase I of the SPA 5 WRF includes two SBRs with pre-SBR anoxic reactors which provide enhanced flow equalization and denitrification capability. Under low-loading conditions, only one anoxic reactor is utilized (1,100 ft² area); however, following increases in loading, a sluice gate connecting the two anoxic tanks is opened to create one large anoxic tank (2,200 ft² area). The anoxic reactor is continuously fed raw primary wastewater and return activated sludge from the two aerobic SBRs. When an SBR cycle starts the aerobic tank receives an initial input from an

anoxic tank (i.e. “fill”) equivalent to approximately $\frac{1}{4}$ of the SBR tank volume. Mixed liquor combined with raw influent from the anoxic reactor is pumped to the aerobic tank at a higher rate than the influent feed rate. Thus, the anoxic volume is drawn down during fill. Following the fill cycle, the SBR water level is at the top of the tank and interact phase is initiated. In the interact phase, mixed liquor and influent from the anoxic reactor continue to be transferred to the SBR. With the SBR full, activated sludge flows back to the anoxic tank via the RAS weir. The overflow from the aerobic SBR tank feeds $\text{NO}_3\text{-N}$ to the anoxic tank, which was produced by aerobic nitrification of $\text{NH}_4\text{-N}$. During interact the anoxic reactor again begins to fill. Once the anoxic reactor level reaches a pre-determined set-point, the SBR stops interact and initiates settle, followed by decant and idle to complete its cycle. At the point when the first SBR goes to settle, the other SBR starts a new cycle by initiating fill.

The following tables show the time sequence and volume changes during a complete cycle for each aerobic SBR tank.

1. Cycle Times Per Aerobic Tank – From Table 8.0:

Fill	39 min (mix during fill)
Interact	132 min
Settle	45 min
Decant	42 min
Idle	<u>84 min</u>
Total Time	342 min/cycle

Number of cycles/day/tank	=	1440 min/day / 342 min/cycle
	=	4.2 cycles/day
@ 2 tanks	=	8.4 fills/day

2. Fill volume at average design load:

Average volume/fill	=	1.2 MGD / 8.4 fills
	=	142,857 gal/fill

Fill Volume = Aerobic Tank Decant Volume
Decant volume = 142,857 gallons

$$\begin{aligned}\text{Aerobic Tank Area} &= 38.5 \text{ ft} \times 78.5 \text{ ft} \\ &= 3,022 \text{ ft}^2\end{aligned}$$

3. Determine Decant depth:

$$\begin{aligned}\text{Decant Depth (ft)} &= (\text{Decant Volume, ft}^3) / (\text{Aerobic tank area ft}^2) \\ &= (142,857 \text{ gal} / 7.48 \text{ gal/ft}^3) / (3,022 \text{ ft}^2)\end{aligned}$$

$$\text{Decant Depth (ft)} = 19,099 \text{ ft}^3 / (3,022 \text{ ft}^2)$$

$$\text{Decant Depth} = 6.3 \text{ ft}$$

4. Determine change in anoxic depth at design flow (using both anoxic tanks):

Assume:

Total surface area of Anoxic Tank = $2 \times (38.5' \times 28.5') = 2,195 \text{ ft}^2$

Average day flow of 1.2 MGD = 833 gpm into Anoxic Tank

Average Flow out of Anoxic Tanks = 3650 gpm^a (using one pump)

^a – fill pumping rate conservatively calculated @ 20' TDH

Actual flow out of Anoxic Tanks = 3650 gpm – 833 gpm
= 2818 gpm

SBR fill time = 142,857 gallons / 3650 gpm = 39 min.

Therefore: Volume change in anoxic tanks = 2818 gpm x 39 min = 109,902 gallons

Calculated depth change at the end of Fill for 1.2 MGD = $(109,902 \text{ gal} / 7.48) / (2195 \text{ ft}^2) = 6.7 \text{ ft}$

5. The following shows the changes in anoxic volume and the cycle operation:

CYCLE DESCRIPTION				
Δt min	Total Time (min)	Anoxic Volume	Aerobic 1 Volume/Condition	Aerobic 2 Volume/Condition
	0	Top Water	Bottom Water	Top Water
		Start Fill #1	Stop Idle/Start Fill	Start Settle
+39	39	Bottom Water	Top Water	Top Water
		Draining	Start Interact	Settling
+6	45	Filling	Top Water	Stop Settle
			Interact	Start Decant
+42	87	Filling	Top Water	Bottom Water
			Interact	Stop Decant/Start Idle
+84	171	Top Water	Top Water	Bottom Water
		Start Fill #2	Start Settle	Stop Idle/Start Fill
+39	210	Bottom Water	Top Water	Top Water
		Draining	Settling	Start Interact
+6	216	Filling	Stop Settle	Top Water
			Start Decant	Interact
+42	258	Filling	Bottom Water	Top Water
			Stop Decant/Start Idle	Interact
+84	342	Top Water	Bottom Water	Top Water
		Start Fill #1	Stop Idle/Start Fill	Start Settle

@ 1.2 MGD, Flow = 833 gpm

AEROBIC TANK NITRIFICATION DESIGN

Average Daily Load To Each Aerobic SBR Tank:

$$\text{BOD} = 3,003 \text{ lb/d} \div 2 = 1,502 \text{ lb/d/t}$$

$$\text{TKN} = 400 \text{ lb/d} \div 2 = 200 \text{ lb/d/t}$$

SBR Tank Volume at Full

$$\begin{aligned} &= (23 \text{ ft Depth}) 3022 \text{ ft}^2 \\ &= 69,513 \text{ ft}^3 \\ &= 519,956 \text{ gallons} \end{aligned}$$

1. Determine equivalent hydraulic retention times

Equivalent Hydraulic Retention Time (HRT):

$$\text{HRT} = 519,956 \text{ gal} / (1.2 \text{ MGD} / 2 \text{ tanks}) \times 24 \text{ hrs} = \mathbf{20.8 \text{ hrs}}$$

Equivalent Anoxic HRT

Maximum Depth = 23 ft

Normal Max. Depth : $23 - 7.0 = 16.0 \text{ ft}$ (volume of full batch avail.)

Anoxic tank depth (Average): $= 16.0 \text{ ft} - (6.7 / 2) = 12.7 \text{ ft}$

$$\begin{aligned} \text{Anoxic Volume} &= (12.7 \text{ ft}) (2195 \text{ ft}^2) \\ &= 27,870 \text{ ft}^3 \\ &= 208,468 \text{ gallons} \end{aligned}$$

$$\text{HRT} = (208,468 \text{ gal} / 1.2 \text{ MGD}) \times 24 \text{ hrs} = \mathbf{4.2 \text{ hrs}}$$

2. Determine Aerobic Tank SRT

Assume that MLSS = 3500 mg/L – typical of SBR operations

Check for sufficient depth in aerobic reactor during settling to handle a MLSS of 3500 mg/L, based on typical SVI achieved:

Assume SVI = 120 mg/L

$$\text{Thickened MLSS during settling} = \frac{10^6}{\text{SVI}} = 8333 \text{ mg/L}$$

MLSS mass full = MLSS mass in settled volume

$$\begin{aligned} 23 \text{ ft} (3500 \text{ mg/L}) &= \text{sludge depth} (8333 \text{ mg/L}) \\ \text{Sludge depth} &= 9.7 \text{ ft.} \end{aligned}$$

Liquid level above sludge depth after settling: $23 \text{ ft} - 9.7 \text{ ft} = 13.3 \text{ ft}$

Decant depth = 6.3 ft, so liquid depth below decanter is $13.3 - 6.3 \text{ ft} = 7.0 \text{ ft}$

So sufficient depth in settle and decant period to handle MLSS of 3500 mg/L

To determine system SRT, a solids balance is needed accounting for solids yield and BOD removal. The following is a standard equation for solids yield that accounts for biomass production and inert solids that enter with wastewater and are not degraded and accumulate in the system:

$$\text{Net Solids Yield: } \left(\frac{Y}{1 + b\text{SRT}} + Y_I \right) = Y_N$$

Y = g VSS/g BOD removal $\approx 0.60 \text{ g/g}$

b = 0.08 g/g-d

SRT = Solids retention time, days

Y_I = g non-biodegradable solids / g BOD
 $\approx 0.50 \text{ g/g}$

$V(\text{MLSS}) = Y_N (\Delta\text{BOD})Q (\text{SRT})$

Q = 0.6 Mgal/d/tank

ΔBOD = 300 mg/L

V = 0.520 Mgal

$Y_N = \left(\frac{0.6}{1 + .08 \text{ SRT}} + 0.50 \right)$

$\text{MLSS} = 3500 \text{ mg/L}$

Solve for SRT

Use spreadsheet:

$$(3500)(0.520) = \left(\frac{0.6}{1 + .08 \text{ SRT}} + 0.50 \right) (300)(0.6) \text{ SRT}$$

$$\text{SRT} = 12.7 \text{ days}$$

3. What is the net solids yield?

$$Y_N = (0.60 / (1 + 0.08 \times 12.7) + 0.50) = \mathbf{0.80 \text{ gTSS/g BOD}}$$

4. Determine the aerobic SRT, which accounts for the time that the mixed liquor is under aeration (accounts for fraction of aeration time per cycle):

Design for 10 hrs/day/tank,

Aeration Fraction = 10 hours aeration / 24 per day = 0.417 hours aeration/day/tank

$$\begin{aligned}\text{Aerobic SRT @ 3500 mg/L MLSS} &= 0.417 (12.7 \text{ d}) \\ &= 5.3 \text{ days}\end{aligned}$$

5. Determine if this aerobic SRT is sufficient to result in satisfactory nitrification and maintain concentrations of nitrifiers in the system (i.e. the minimum nitrifier growth rate must exceed the wasting rate) – the design goal is to achieve is $\text{NH}_4\text{-N}$ concentration less than 0.5 mg/L.

Because of recirculation through the anoxic tank with continuous feeding, the aerobic SBR tank can be considered equivalent to a continuously stirred tank reactor (CSTR). Thus, we can consider that the minimum nitrifying bacteria growth rate (i.e. growth rate is minimized at the lowest substrate concentration) is related to the aerobic SRT as follows. From this we can determine the $\text{NH}_4\text{-N}$ concentration expected in the SBR related to the nitrifier growth rate and sludge wasting rate (i.e. SRT).

$$\frac{1}{\text{SRT}} = \mu = \frac{\mu_m N}{K_N + N} \quad \text{Nitrification Monod Kinetics}$$

where: μ = specific growth rate of nitrifiers, g/g-d
 N = $\text{NH}_4\text{-N}$ Conc., mg/L
 μ_m = Maximum specific growth rate, 0.72 g/g-d @ 25° C
 K_N = 0.75 mg/L

(EPA Nitrogen Control Manual, 1993)

From above the aerobic SRT = 5.3 days

$$\begin{aligned}\mu &= 1 / \text{SRT} = 1 / 5.3 = 0.189 \\ 0.189 &= 0.72 \times N / (0.75 + N) \\ N &= \text{NH}_4\text{-N} = 0.27 \text{ mg/L}\end{aligned}$$

Sufficient capacity for complete nitrification

Check safety factor for $\text{NH}_4\text{-N}$ = 0.50 mg/L treatment goal.

$$\frac{1}{\text{SRT}} = \mu = \frac{(0.72)(0.50)}{(0.75 + 0.50)} = 0.28 / \text{day}$$

$$\text{SRT} = 1 / 0.28 = 3.5 \text{ days}$$

$$\text{Safety factor} = 5.3 / 3.5 = 1.5 \text{ (okay)}$$

PERFORM NITROGEN BALANCE TO GET AMOUNT OF N OXIDIZED

Nitrogen N = nitrogen for synthesis + effluent N + N oxidized to nitrate

Nitrogen for synthesis: SRT = 12.7 days @ 3500 mg MLSS

$$\text{Biomass Yield} = Y / (1 + b \times \text{SRT}) = 0.72 / (1 + 0.08 \times 12.7) = 0.36 \text{ g VSS / g BOD}$$

$$\text{Biomass Produced} = (0.36 \text{ g VSS/g BOD}) * (300 \text{ mg/L} - 5 \text{ mg/L BOD}) = 106.2 \text{ mg/L}$$

$$\text{@ 10\% nitrogen, N synthesis} = 0.10 (106.2) = 10.6 \text{ mg/L}$$

Assume 30% N for synthesis is returned/recycled during digestion/dewatering of sludge:

$$10.6 \text{ mg/L} - (0.3 * 10.6 \text{ mg/L}) = \mathbf{7.4 \text{ mg/L}}$$

Nitrate Produced:

$$\text{TKN} - \text{N}_{\text{syn}} - \text{NH}_4\text{-N} = \text{NO}_3\text{-N}$$

$$40 - 7.4 - 0.5 = \text{NO}_3\text{-N}$$

$$\text{NO}_3\text{-N} = \mathbf{32.1 \text{ mg/L}}$$

NO₃-N Produced Per Feed Cycle:

$$= 32.1 \text{ mg/L} (0.143 \text{ Mgal / cycle}) * 8.34 = \mathbf{38.3 \text{ lb/cycle}}$$

EVALUATE NITROGEN REMOVAL CAPACITY

1. Determine NO₃-N balance:

Since the reactor approaches a complete mix operation with the internal recycle, we can assume a relatively constant NO₃-N concentration in the aerobic reactor. The nitrate produced has to be accounted for as follows:

$$\text{NO}_3\text{-N produced} = \mathbf{(38.3 \text{ lb/cycle})}$$

$$\begin{aligned} = & \quad \underline{\text{A.}} - \text{NO}_3\text{-N removed in aerobic reactor (during settle and decant)} \\ & \quad + \\ & \quad \underline{\text{B.}} - \text{NO}_3\text{-N removed in aerobic reactor (during anoxic mix)} \\ & \quad + \\ & \quad \underline{\text{C.}} - \text{NO}_3\text{-N allowed in effluent discharge (< 9.5 mg/l)} \\ & \quad + \\ & \quad \underline{\text{D.}} - \text{NO}_3\text{-N removed in overflow to anoxic reactor (during interact)} \end{aligned}$$

4. - Aerobic reactor nitrate loss (denitrification) will occur in the mixed liquor during the decant, settle, and idle periods when oxygen is depleted.

Use SDNR for endogenous respiration per the following reference:

Biological Nutrient Removal, Randall, Barnard, and Stensel, Technomics, 1992

$$SDNR = \left(\frac{0.50}{2.86} \right) \left(\frac{A_n}{Y_n} \right) \left(\frac{1}{SRT} \right)$$

$$A_n = 1.5 - 1.42Y + \frac{1.42bYSRT}{1+bSRT}$$

$$Y_n = \frac{Y}{1+bSRT} + Y_I$$

$$A_n = 1.5 - (1.42 * 0.6) + ((1.42)(0.08)(0.6)(5.3) / (1 + (0.08)*(5.3))) = 0.90$$

$$Y_n = (0.6 / (1 + (0.08)*(5.3))) + 0.50 = 0.92$$

$$SDNR = (0.5/2.86) * (0.90/0.92) * (1/12.7) = \mathbf{0.013 \text{ g/g-d}}$$

$$\text{Removed} = SDNR(V)(MLSS)(8.34)(\text{time}),$$

$$\begin{aligned} \text{Time} &= 45 \text{ min (Settle)} \\ &+ 42 \text{ min (Decant)} \\ &+ \underline{84 \text{ min (Idle)}} \\ &= 171 \text{ min (Total)} \end{aligned}$$

$$= (0.01)(0.520)(3500)(8.34)(171)/60/24$$

$$= \mathbf{18.0 \text{ lb/cycle}}$$

B. - Denitrification occurs in the SBR during anoxic mix throughout the cycle of interact when air is periodically turned off. The SDNR during this cycle can be calculated below

$$(\text{NO}_3\text{-N removal} = (\text{Volume}) (\text{MLSS}) (\text{SDNR}) \frac{\Delta t}{\text{cycle}} (8.34)$$

Average SBR Volume = 0.520 Mgal

$$\Delta t = 30 \text{ min} = 0.021 \text{ days/cycle}$$

NO₃-N removed:

$$= (0.01)(0.520)(3500)(8.34)(0.021) = \mathbf{3.2 \text{ lb/cycle}}$$

C. - NO₃-N allowed to be in the effluent is < 9.5 mg/l;

Assume 5 mg/L of NO₃-N is discharge:

$$\text{Removed} = (5 \text{ mg/l}) * (0.143) * (8.34)$$

$$= \mathbf{5.9 \text{ lbs/cycle}}$$

D. - Determine how much NO₃-N must be removed in anoxic zone:

$$\text{NO}_3\text{-N to be removed on anoxic zone} = 38.3 \text{ lb/cycle} - 18.0 - 3.2 - 5.9$$

$$= \mathbf{11.2 \text{ lb/cycle}}$$

D. (continued) Determine amount of nitrate fed to anoxic reactor:

To evaluate the nitrate removal capacity we have to determine the amount of nitrate that flows from the aerobic reactor to the anoxic tank and use the SDNR to determine if it can be sufficiently reduced.

Nitrate return feed rate to anoxic zone (using only one fill pump):

Flow to anoxic = 3850 gpm (132 min) = 508,200 gallons/cycle

Average initial nitrate concentration in the recycle flow:

$$\text{NO}_3\text{-N (mg/L)} = ((38.3 \text{ lbs N} / 0.520 \text{ Mgal}) / 8.34) = 8.8 \text{ mg/L}$$

Assume 60% of this concentration = 5 mg/l

$$\text{At 5 mg/L NO}_3\text{-N} = 5 * (0.508) * (8.34) = 21.2 \text{ lb/cycle}$$

As 21.2 lb/cycle > 11.2 lb/cycle, the system is not limited by recycle rate

Determine NO₃-N removal capacity of anoxic reactor:

Specific Denitrification Rate in the Anoxic Reactor can be related to BOD F/M Ratio. (EPA Nitrogen Control Manual)

$$\begin{aligned}\text{SDNR} &= 0.03 \text{ F/M} + 0.029 \\ \text{SDNR} &= \text{Specific NO}_3\text{-N reduction rate, g NO}_3\text{-N / g MLSS-d} \\ \text{F/M} &= \text{g BOD / g MLSS-d} \\ \text{F/M} &= \frac{1.2 \text{ Mgal/d} \times 300 \text{ mg/L BOD}}{3500 \text{ mg/L} \times 0.208 \text{ Mgal (average depth)}} \\ \text{F/M} &= 0.44 \text{ g/g-d} \\ \text{SDNR} &= 0.044 \text{ g/g-d}\end{aligned}$$

The SDNR \cong 0.044 g NO₃-N/g MLSS-d

$$\text{NO}_3\text{-N removal} = (\text{Volume}) (\text{MLSS}) (\text{SDNR}) \frac{\Delta t}{\text{cycle}} \quad (8.34)$$

Average Anoxic Volume = 0.208 Mgal

$$\Delta t = 132 \text{ min} = 2.2 \text{ hours} = 0.09 \text{ days/cycle}$$

$$\text{NO}_3\text{-N removed} = (0.208) (3500) (0.044) (0.09) (8.34)$$

$$= 24.0 \text{ lbs/cycle}$$

$$= 24.0 \text{ lb/cycle} > 11.2 \text{ lb/cycle required}$$

Therefore, sufficient capacity in anoxic is available to remove the necessary amount of NO₃-N

DETERMINE OXYGEN REQUIRED

Flow/Tank	= 0.6 MGD
BOD	= 300 mg/L
NO ₃ -N Produced	= 32.1 mg/L
Effluent TN	= < 5 mg/L

Oxygen for BOD Removal:

$$O_2 = [1.5] \frac{gO_2}{gBOD} (BOD)Q - 1.42P_{XBio}$$

P_{XBio} = Biomass sludge wasted/day

Biomass yield = 0.37 gVSS/gBOD

$$P_{XBio}/\text{Tank} = 0.37 \text{ g/g} \times 300 \text{ mg/L} \times 0.6 \text{ MGD} \times 8.34 \\ = 555.4 \text{ lb/d}$$

$$\text{Lbs } O_2/\text{day} = 1.5 \text{ g } O_2 / \text{g BOD} \times (300 \text{ mg/L} - 5 \text{ mg/L}) \times 0.6 \text{ MGD} \times 8.34 - 1.42 \times 555.4 \text{ lb/d} \\ = 1425.6 \text{ lb } O_2/\text{day}$$

Max Aeration Time Available

$$= 39 \text{ min (fill)} + (132 \text{ min} - 30 \text{ min anoxic mix}) (\text{interact}) + 84 \text{ min (idle)} / 342 (\text{cycle}) = 0.66$$

$$0.66 (24 \text{ hr/d}) = 15.8 \text{ hrs/day available aeration}$$

Design Aeration Time = 10.0 hrs/day

$$\text{Lbs } O_2 / \text{hr aeration} = 1425.6 \text{ lb/d} / 10.0 \text{ hrs/d} = \mathbf{142.6 \text{ lb } O_2/\text{hr (AOR)}}$$

Nitrification O₂:

$$\text{NO}_3\text{-N produced} = 32.1 \text{ mg/L}$$

$$O_2 = 4.3 \text{ g } O_2 / \text{g N} \times (32.1 \text{ mg/L} - 5 \text{ mg/L}) \times 0.6 \text{ MGD} \times 8.34$$

$$\text{Lbs } O_2 / \text{hr aeration} = 583 \text{ lbs/d} / 10.0 \text{ hrs/d} = \mathbf{58.3 \text{ lbs } O_2/\text{hr (AOR)}}$$

Denitrification O₂ Credit:

$$\text{NO}_3\text{-N reduced} = 27.1 \text{ mg/L (accounts for 5 mg/L in effluent)}$$

$$\text{O}_2 \text{ credit} = 2.86 (27.1) (0.6) 8.34$$

$$\text{Lbs O}_2 / \text{hr aeration} = 387.8 / 10.0 = \mathbf{38.7 \text{ lbs/hr (AOR)}}$$

Net O₂ Require:

$$\text{Net O}_2 \text{ req'd/Tank} = 142.6 (\text{BOD}) + 58.3 (\text{Nitro}) - 38.7 (\text{De-nitro})$$

$$= 162.2 \text{ lbsO}_2/\text{hr}$$

$$\text{AOR} = \mathbf{162.2 \text{ lbsO}_2/\text{hr}}$$

Determine Clean Water Transfer Rate

$$\text{SOR} = \frac{\text{AOR}(C_{\text{Sat}20a})}{\alpha (BC_{\text{Sat,TH}} - \text{DO})(1.024^{T-20})}$$

$$C_{\text{Sat,TH}} = (C_{\text{Sat}})(0.5) \left[\frac{P_d}{P_{\text{Atm,H}}} + \frac{O_t}{21} \right]$$

$$C_{\text{Sat}20a} = (C_{\text{Sat}20})(0.5) \left[\frac{P_d}{P_{\text{Atm}20}} + \frac{O_t}{21} \right]$$

SOR = standard oxygen transfer rate

$$\alpha = 0.6$$

$$\beta = 0.95$$

$$T = 25^\circ\text{C}$$

$$C_{\text{Sat}} = 7.96 \text{ mg/L (at 1000 ft Elevation)}$$

$$\text{DO} = 2.0 \text{ mg/L}$$

$$C_{\text{Sat}20} = 9.08 \text{ mg/L}$$

$$P_d = 24.15 \text{ psi}$$

$$P_{\text{Atm,H}} = 14.17 \text{ psi}$$

pressure

$$O_t = 18\%$$

Please note: P_d = depth + atmospheric

$$C_{\text{Sat,TH}} = (7.96)(0.5) \left[\frac{24.15}{14.17} + \frac{18}{21} \right] = 10.19 \text{ mg/L}$$

$$C_{\text{Sat}20a} = (9.08)(0.5) \left[\frac{24.64}{14.69} + \frac{18}{21} \right] = 11.5 \text{ mg/L}$$

$$\text{SOR} = \frac{\text{AOR}(C_{\text{Sat}20a})}{\infty (BC_{\text{Sat,TH}} - \text{DO})(1.024^{T-20})}$$

$$\text{SOR} = \frac{162.2 (11.5)}{0.6[(0.95)(10.19) - 2](1.024^{25-20})}$$

$$\text{SOR} = 359.5 \text{ lbs/hr}$$

Determine air rate @ 41.2% O₂ transfer efficiency (From Sanitaire)

$$\text{Blower CFM} = \text{SOR} / (60 \text{ min/hr} \times \text{Transfer Eff.} \times 0.0172 \text{ lbO}_2/\text{ft}^3)$$

$$\text{Blower CFM} = 359.5 / (60 * 0.412 * 0.0172)$$

$$\text{Blower CFM} = \mathbf{845 \text{ SCFM @ 10.0 hours}}$$

Each SBR requires one blower per tank with rated capacity of 845 scfm @ 10.4 psi using 10.0 hours aeration to provide design capacity. Provide (3) three blowers at capacity of **1000 SCFM at 10.4 psi** to provide additional capacity for peak loads – two per tank with one redundant. Using a 1.3 peaking factor, 845 scfm * 1.3 = 1100 scfm @ 10.0 hrs or 1000 scfm @ 11 hrs (<15.8 hrs max available).

PROCESS OPERATION (ONE AEROBIC TANK)

Operation description:

When either the facility is performing maintenance or under an emergency scenario where one SBR tank is removed from service, the treatment process will be single SBR tank operation. Under the single-tank mode, the anoxic reactor is fed raw influent wastewater from the headworks similar to two-tank operation; however, in single tank mode activated sludge is returned from only one SBR and the anoxic reactor is idle during SBR settle and decant. When the single-tank SBR cycle starts, the SBR receives an initial input from the anoxic tank (i.e. "fill") equivalent to approximately $\frac{1}{4}$ of the SBR tank volume. Mixed liquor combined with raw influent from the anoxic reactor is pumped to the aerobic tank at a higher rate than the influent feed rate. Thus, the anoxic volume is drawn down during fill. Following the fill cycle, the SBR water level is at the top of the tank and interact phase is initiated. In the interact phase mixed liquor and influent from the anoxic reactor is continued to be transferred to the SBR, but the SBR is full and overflows return activated sludge back to the anoxic tank via the RAS weir. The overflow from the aerobic SBR tank feeds $\text{NO}_3\text{-N}$ to the anoxic tank, which was produced by aerobic nitrification of $\text{NH}_4\text{-N}$. During interact the anoxic reactor again begins to fill. Once the anoxic reactor level reaches a pre-determined set-point, the SBR initiates settle and decant to complete its cycle. The anoxic reactor idles until the SBR completes decant and is able to accept fill again to begin a new cycle.

1. Cycle Times for Single SBR Tank:

Fill (using two pumps)	18 min
Interact	66 min
Settle	45 min
Decant	<u>42 min</u>
Total Time	171 min/cycle

$$\begin{aligned}\text{Number of cycles/day/tank} &= 1440 \text{ min/day} / 171 \text{ min/cycle} \\ &= 8.4 \text{ cycles/day}\end{aligned}$$

2. Fill volume at average design load:

$$\begin{aligned}\text{Average volume/fill} &= 1.2 \text{ MGD} / 8.4 \text{ fills} \\ &= 142,857 \text{ gal/fill}\end{aligned}$$

$$\begin{aligned}\text{Fill Volume} &= \text{Aerobic Tank Decant Volume} \\ \text{Decant volume} &= 142,857 \text{ gallons}\end{aligned}$$

$$\begin{aligned}\text{SBR Tank Area} &= 38.5 \text{ ft} \times 78.5 \text{ ft} \\ &= 3,022 \text{ ft}^2\end{aligned}$$

Determine equivalent hydraulic retention times

Equivalent Hydraulic Retention Time (HRT):

$$\text{HRT} = 519,956 \text{ gal} / 1.2 \text{ MGD} \times 24 \text{ hrs} = 10.4 \text{ Hrs}$$

Determine change in anoxic depth at design flow:

Assume:

Total surface area of Anoxic Tanks = 2195 ft²

Average day flow of 1.2 MGD = 833 gpm into Anoxic Tanks

Pumping out of Anoxic Tanks (two pumps) = 7940 gpm^a

Actual flow out of Anoxic Tanks = 7940 gpm – 833 gpm
= 7107 gpm

^a – pumping rate of 3970 gpm per pump assumed for 17' TDH

SBR fill time = 18 min.

Therefore: Volume change during Fill in anoxic tanks = 7107 gpm x 18 min = 127,926 gallons

Volume change (surge) during Settle and Decant = (45 + 42) x 833 gpm = 72,471 gallons

Increase in anoxic depth at 1.2 MGD during settle/decant in single-tank mode

$$= (71,638 \text{ gal} / 7.48 \times 2195 \text{ ft}^2) = 4.4 \text{ ft}$$

Calculated depth change at the end of Fill = (127,926) / (2195 x 7.48) = 7.8 Ft

Equivalent Anoxic HRT

Tank depth: = 23 – 6.6 = 16.4 ft (¾ batch reserved)

Average Tank Depth: = 16.4 + 4.4 (during settle and decant) – (7.8/2)
= 16.9 ft

$$\begin{aligned} \text{Anoxic Volume} &= (16.9 \text{ ft}) (2195 \text{ ft}^2) \\ &= 37,096 \text{ ft}^3 \\ &= 277,474 \text{ gallons} \end{aligned}$$

$$\text{HRT} = (277,474 \text{ gal} / 1.2 \text{ MGD}) \times 24 \text{ hrs} = 5.5 \text{ hrs}$$

2. Determine Aerobic Tank SRT

Assume that MLSS has been increased to 4500 mg/L for single tank operation.

Check for sufficient depth in aerobic reactor during settling to handle a MLSS of 4500 mg/L, based on typical SVI achieved:

Assume SVI = 120 mg/L

$$\text{Thickened MLSS during settling} = \frac{10^6}{\text{SVI}} = 8333 \text{ mg/L}$$

MLSS mass full = MLSS mass in settled volume
 $23 \text{ ft} (4500 \text{ mg/L}) = \text{sludge depth} (8333 \text{ mg/L})$
 Sludge depth = 12.4 ft.

Liquid level above sludge depth after settling: $23 \text{ ft} - 12.4 \text{ ft} = 10.6 \text{ ft}$

Decant depth = 6.3 ft, so liquid depth below decanter is $10.6 - 6.3 \text{ ft} = 4.3 \text{ ft}$

So sufficient depth in settle and decant period to handle MLSS of 4500 mg/L

To determine system SRT a solids balance is needed accounting for solids yield and BOD removal. The following is a standard equation for solids yield that accounts of biomass production and inert solids that enter with wastewater and are not degraded and accumulate in the system:

$$\text{Net Solids Yield: } \left(\frac{Y}{1 + b\text{SRT}} + Y_I \right) = Y_N$$

$$\begin{aligned} Y &= \text{g VSS/g BOD removal} \approx 0.60 \text{ g/g} \\ B &= 0.08 \text{ g/g-d} \\ \text{SRT} &= \text{solids retention time, days} \\ Y_I &= \text{g inert solids / g BOD} \approx 0.50 \text{ g/g} \end{aligned}$$

$$\begin{aligned} V(\text{MLSS}) &= Y_N (\Delta\text{BOD})Q (\text{SRT}) \\ Q &= 1.2 \text{ Mgal/d} \\ \Delta\text{BOD} &= 300 \text{ mg/L} \\ V &= 0.520 \text{ Mgal} \\ Y_N &= \left(\frac{0.6}{1 + .08 \text{ SRT}} + 0.50 \right) \\ \text{MLSS} &= 4500 \text{ mg/L} \end{aligned}$$

Solve for SRT
 Use spreadsheet:

$$\begin{aligned} (4500) (0.520) &= \left(\frac{0.6}{1 + .08 \text{ SRT}} + 0.50 \right) (300) (0.520) \text{ SRT} \\ \text{SRT} &= 7.4 \text{ days} \end{aligned}$$

3. What is the net solids yield?

$$Y_N = (0.60 / (1 + 0.08 \times 7.4) + 0.5 = 0.88 \text{ g TSS/g BOD}$$

4. Determine the aerobic SRT, which accounts for the time that the mixed liquor is under aeration:

Aerobic SRT accounts for fraction of Aeration Time

Note: Unlike two-tank operation, at design flow and loading single-tank operation will require aeration during fill period and during the entire interact period.

$$\begin{aligned}\text{Aeration Time Fraction} &= 18 \text{ min (fill)} + 66 \text{ min (interact)} - 0 \text{ min (anoxic mix)} / \\ &171 \text{ min (total cycle)} \\ &= 0.50\end{aligned}$$

$$\begin{aligned}\text{Aerobic SRT @ 4500 mg/L MLSS} &= 0.50 (7.4 \text{ d}) \\ &= 3.7 \text{ days}\end{aligned}$$

5. Determine if this aerobic SRT is sufficient to result in satisfactory nitrification and maintain concentrations of nitrifiers in the system (i.e. the minimum nitrifier growth rate must exceed the wasting rate) – the design goal for single-tank mode is to achieve is $[\text{NH}_4\text{-N}]$ less than 2.0 mg/L.

Because of recirculation through the anoxic tank with continuous feeding, the aerobic SBR tank can be considered equivalent to a continuously stirred tank reactor (CSTR). Thus, we can consider that the minimum nitrifying bacteria growth rate (i.e. growth rate is minimized at the lowest substrate concentration) is related to the aerobic SRT as follows. From this we can determine the $\text{NH}_4\text{-N}$ concentration expected in the SBR related to the nitrifier growth rate and sludge wasting rate (i.e. SRT).

$$\frac{1}{\text{SRT}} = \mu = \frac{\mu_m N}{K_N + N} \quad \text{nitrification monod kinetics}$$

where: μ = specific growth rate of nitrifiers, g/g-d
 N = $\text{NH}_4\text{-N}$ Conc., mg/L
 μ_m = maximum specific growth rate, 0.72 g/g-d @ 25° C
 K_N = 0.75 mg/L
(EPA Nitrogen Control Manual, 1993)

From above the aerobic SRT = 3.7 days

$$\begin{aligned}\mu &= 1 / \text{SRT} = 1 / 3.7 = 0.27 \\ 0.27 &= 0.72 \times N / (0.75 + N) \\ N &= \text{NH}_4\text{-N} = 0.45 \text{ mg/L}\end{aligned}$$

sufficient capacity for complete nitrification

Check safety factor for $\text{NH}_4\text{-N} = 2.0 \text{ mg/L}$ treatment goal.

$$(1/\text{SRT}) = ((0.72 \times 2) / (0.75 + 2)) = 0.52 / \text{day}$$

$$1 / \text{SRT} = 1 / 0.52 = 1.9$$

$$\text{Safety factor} = 3.7 / 1.9 = 1.9 \text{ (Okay)}$$

PERFORM NITROGEN BALANCE TO GET AMOUNT OF N OXIDIZED

Nitrogen N = nitrogen for synthesis + effluent N + N oxidized to nitrate

Nitrogen for synthesis: SRT = 7.4 days @ 4500 mg/L MLSS

$$\text{Biomass Yield} = Y / (1 + b \times \text{SRT}) = 0.72 / (1 + 0.08 \times 7.4) = 0.45 \text{ gVSS / g BOD}$$

$$\text{Biomass Produced} = 0.45 \text{ g (300 mg/L - 5 mg/L BOD)} = 132.8 \text{ mg/L}$$

$$\text{@ 10\% nitrogen, N synthesis} = 0.10 (132.8) = \mathbf{13.3 \text{ mg/L}}$$

Assume no return/recycle N during digestion/dewatering of sludge for single tank mode:

Nitrate Produced:

$$\text{TKN} - \text{N}_{\text{syn}} - \text{NH}_4\text{-N} = \text{NO}_3\text{-N}$$

$$40.0 - 13.3 - 2.0 = \text{NO}_3\text{-N}$$

$$\text{NO}_3\text{-N} = 24.7 \text{ mg/L}$$

NO₃-N Produced Per Feed Cycle:

$$= 24.7 \text{ mg/L (0.143 Mgal) } 8.34 = 29.5 \text{ lb/cycle}$$

EVALUATE NITROGEN REMOVAL CAPACITY

1. Determine NO₃-N balance:

Since the reactor approaches a complete mix operation with the internal recycle, we can assume a relatively constant NO₃-N concentration in the aerobic reactor. The nitrate produced has to be accounted for as follows:

NO₃-N produced = (29.5 lb/cycle)

$$\begin{aligned} = & \quad \underline{A} - \text{NO}_3\text{-N removed in aerobic reactor (during settle and decant)} \\ & \quad + \\ & \quad \underline{B} - \text{NO}_3\text{-N removed in aerobic reactor (during anoxic mix)} \\ & \quad + \\ & \quad \underline{C} - \text{NO}_3\text{-N allowed in effluent discharge (< 4.5 mg/l)} \\ & \quad + \\ & \quad \underline{D} - \text{NO}_3\text{-N removed in overflow to anoxic reactor (during interact)} \end{aligned}$$

A. - Aerobic reactor nitrate loss (denitrification) will occur in the mixed liquor during the decant and settle period when oxygen is depleted.

Use SDNR for endogenous respiration per the following reference:

Biological Nutrient Removal, Randall, Barnard, and Stensel, Technomics, 1992

$$SDNR = \left(\frac{0.50}{2.86} \right) \left(\frac{A_n}{Y_n} \right) \left(\frac{1}{SRT} \right)$$

$$A_n = 1.5 - 1.42Y + \frac{1.42bYSRT}{1+bSRT}$$

$$Y_n = \frac{Y}{1+bSRT} + Y_I$$

$$A_n = 1.5 - (1.42 * 0.6) + ((1.42)(0.08)(0.6)(3.7) / (1 + (0.08)*(3.7))) = 0.84$$

$$Y_n = (0.6 / (1 + (0.08)*(3.7))) + 0.50 = 0.96$$

$$SDNR = (0.5/2.86) * (0.84/0.96) * (1/7.4) = \mathbf{0.021 \text{ g/g-d}}$$

$$\text{Removed} = SDNR(V)(\text{fraction of sludge blanket})(MLSS)(8.34)(\text{time}),$$

$$\begin{aligned} \text{Time} &= 45 \text{ min (Settle)} \\ &+ 42 \text{ min (Decant)} \\ &= 87 \text{ min (Total)} \end{aligned}$$

$$= (0.021)(0.520)(12.4/23 \text{ ft})(4500)(8.34)(86)/60/24$$

$$= \mathbf{13.2 \text{ lb/cycle}}$$

B. - Since anoxic mixing will not occur during single tank operation, denitrification cannot be credited.

C. - NO₃-N allowed to be the effluent is < 6 mg/l ([NH₄-N] single tank mode < 2 mg/L);

Assume 6 mg/L of NO₃-N is discharge:

$$\text{Removed} = (6 \text{ mg/l}) * (0.143) * (8.34)$$

$$= \mathbf{7.1 \text{ lbs/cycle}}$$

D. - Determine how much NO₃-N must be removed in anoxic zone:

$$\begin{aligned}\text{NO}_3\text{-N to be removed on anoxic zone} &= 29.5 \text{ lb/cycle} - 13.2 - 7.1 \\ &= \mathbf{9.2 \text{ lb/cycle}}\end{aligned}$$

Determine amount of nitrate fed to anoxic reactor:

To evaluate the nitrate removal capacity we have to determine the amount of nitrate that flows from the aerobic reactor to the anoxic tank and use the SDNR to determine if it can be sufficiently reduced.

Nitrate return feed rate to anoxic zone (using two pumps):

Flow to anoxic = 7940 gpm (66 min) = 524,040 gallons/cycle

Average initial nitrate concentration in the recycle flow:

$$\text{NO}_3\text{-N (mg/L)} = ((29.5 \text{ lbs N} / 0.520 \text{ Mgal}) / 8.34) = 6.8 \text{ mg/L}$$

Assume 75% of this concentration = 5.0 mg/l

$$\text{At 5.0 mg/L NO}_3\text{-N} = 5.0 * (0.524) * (8.34) = 21.9 \text{ lb/cycle}$$

As 21.9 lb/cycle > 9.2 lb/cycle, the system is not limited by recycle rate

Determine NO₃-N removal capacity of anoxic reactor:

Specific Denitrification Rate in the Anoxic Reactor can be related to BOD F/M Ratio. (EPA Nitrogen Control Manual)

$$\begin{aligned}\text{SDNR} &= 0.03 \text{ F/M} + 0.029 \\ \text{SDNR} &= \text{Specific NO}_3\text{-N reduction rate, g NO}_3\text{-N / g MLSS-d} \\ \text{F/M} &= \text{g BOD / g MLSS-d} \\ \text{F/M} &= \frac{1.2 \text{ Mgal/d} \times 300 \text{ mg/L BOD}}{4500 \text{ mg/L} \times 0.277 \text{ Mgal (average depth)}} \\ \text{F/M} &= 0.29 \text{ g/g-d} \\ \text{SDNR} &= 0.038 \text{ g/g-d}\end{aligned}$$

The SDNR \cong 0.038 g NO₃-N/g MLSS-d

$$\text{NO}_3\text{-N removal} = (\text{Volume}) (\text{MLSS}) (\text{SDNR}) \frac{\Delta t}{\text{cycle}} \quad (8.34)$$

Average Anoxic Volume = 0.277 Mgal

$$\Delta t = 66 \text{ min} = 1.1 \text{ hours} = 0.046 \text{ days/cycle}$$

$$\text{NO}_3\text{-N removed} = (0.277) (4500) (0.038) (0.046) (8.34)$$

$$= \mathbf{18.2 \text{ lbs/cycle}}$$

$$= 18.2 \text{ lb/cycle} > 9.2 \text{ lb/cycle required (safety provided)}$$

Therefore, sufficient capacity in anoxic is available to remove the necessary amount of $\text{NO}_3\text{-N}$

EVALUATE SINGLE TANK AERATION CAPACITY

At the end of decant there will not be an “Idle” period because the anoxic reactor will already be at cycle water level. Therefore, the amount of aeration time available is equal to:

$$\text{Aeration time available} = (18 \text{ min (fill)} + 66 \text{ min (interact/react)} - 0 \text{ (anoxic mix)}) * (8.4 \text{ cycles/day})$$

$$= 706 \text{ min/day or } 11.8 \text{ hrs/day}$$

Therefore, from the previous calculations:

$$\text{SOR required} = 359.5 \text{ lbs/hr @ } 1.2 \text{ MGD and } 10.0 \text{ hours of aeration time per tank}$$

$$\text{CFM required (single tank)} = 359.5 \text{ lbs/hr} \times 2 \times (10.0/11.8) = 609 \text{ lbs/hr.}$$

Determine air requirement @ 39.1% O_2 transfer efficiency (From Sanitaire)

$$\text{Blower CFM} = \text{SOR} / (60 \text{ min/hr} \times \text{Transfer Eff.} \times 0.0177 \text{ lbO}_2/\text{ft}^3)$$

$$\text{Blower CFM} = 609 \text{ lbs/hr} / (60 * 0.391 * 0.0172)$$

$$\text{Blower CFM} = \mathbf{1509 \text{ SCFM}}$$

Therefore, two blowers designed for two-tank mode (1000 SCFM @ 10.4 psi) will be able to provide the required air to operate in single tank mode at design capacity with one additional blower for redundancy.

SURGE TANK AND FILTER DESIGN REQUIREMENTS

Decant Time = 42 min

Decant Volume = 0.143 Mgal
= 142,857 gal

Decant Rate = 142,857 gal / 42 min
= 3400 gpm

Using Decanters @ 225 gpm/ft – requires 15.1 ft of weir length

Filter area: 215.2 ft² per 4 disc filter

Two filters in service (one redundant)

Flux rate (peak) = 1666 gpm / (215.2 ft² x 1 filter)
= 7.7 gpm/ ft² (< 8.0 gpm/ ft² - okay)

Minimum surge tank volume needed:

$$= (3400 \text{ gpm} - 833 \text{ gpm}) * 42 \text{ min}$$

$$= 107,814 \text{ gallons (14,414 ft}^3\text{)}$$

$$\text{Area provided} = 18.5' \times 58.5' = 1082 \text{ ft}^2$$

$$\text{Minimum depth required} = 14,414 \text{ ft}^3 / 1082 \text{ ft}^2 = 13.3 \text{ ft}$$

$$\text{Design Depth} = 16.7'$$

$$\text{Total Volume provided} = (1082 \times 13.17 \times 7.48) + (17.75 \times 18.5 \times 3.4 \times 7.48) = 114,940 \text{ gallons}$$

SLUDGE PRODUCTION

1. Waste to Aerobic Storage for Thickening (to 1.5%)
2. Aerobic Digestion for Solids reduction (assume 30%)
3. Dewater with centrifuge (polymer addition)
4. Haul to disposal

1. Pre-Thickened Sludge Volume

$$2402 \text{ lb/day} / (0.0088 \times 8.34) = 32,728 \text{ gallons/day wasted}$$

$$\text{Therefore } 32,728 / (4.2 \text{ cycles/day/tank} \times 2 \text{ tanks}) = 3,896 \text{ gallons/cycle} \\ @ 300 \text{ gpm (waste pump capacity) waste time} = 13 \text{ minutes/cycle}$$

Alternately - On a continuous waste mode of operation:

$$32,728 \text{ gallons/day} @ 0.88\% = 82,286 \text{ gallons/day} @ 0.35\% \text{ (mixed liquor)}$$

$$\text{Required waste rate} = 82,286 \text{ gal/d} / 2 \text{ tanks} / 24 \text{ hrs} / 60 \text{ min/hr} = 29 \text{ gpm}$$

So more than sufficient waste capacity is installed for either mode of operation.

After Thickening:

$$\text{TS} = 2402 \text{ lb/d} @ 1.5\% = 19,200 \text{ gallons}$$

2. After Solids Reduction

$$\text{Assume } 80\% \text{ VSS} = 2402 \text{ lb TS} \times 0.8 = 1922 \text{ lb VSS}$$

Assume 30% VSS reduction in storage.

$$\text{TS after reduction} = (2402 \text{ lb TS} - 1922 \text{ lb VSS}) + (1922 \text{ lb VSS} \times (1 - 0.30)) \\ = 1825 \text{ lb TS} @ 1.5\% = 14,592 \text{ gallons/day wet sludge}$$

Calculate Solids Storage in Aerobic Storage:

$$\text{Aerobic storage surface area} = 28.5' \times 58.5' = 1667.3 \text{ ft}^2$$

$$\text{Therefore, volume per foot depth} = 1667.3 \times 7.48 = 12,470 \text{ gallons/ft}$$

$$\text{Total water depth in reactor} = 23 \text{ feet (15 feet usable storage)}$$

$$\text{Therefore the available storage volume} = 12,470 \times 15 \text{ ft} = 187,050 \text{ gallons}$$

$$\text{The available days of storage} = 187,050 \text{ gal} / 14,592 \text{ gal/day} = 12.8 \text{ days}$$

3. Final sludge for dewatering

$$\text{Volume} = 14,592 \text{ gal/d} @ 1.5\%$$

Provide 1 Centrifuge Unit @ 90 gpm loading rate

Hours of operation per day @ design flow = $14,592 \text{ gal/d} / 90 \text{ gpm} \times 60 \text{ min/hr}$
= 2.7 hours per day @ 1.5%

Assume polymer usage is average = 10 lb/2000 lb D.S.

Polymer consumption per day = $1871 \text{ lb} / 2000 \times 10 = 9.4 \text{ lb/day}$

Calculate gallons of neat emulsion polymer required / day:

= $9.4 \text{ lbs/d} / 8.75 \text{ (specific gravity)} \times 3 \text{ (dilution factor)} = 3.1 \text{ gallons/day}$

4. Final sludge for disposal

Assume:

Solids concentration from centrifuge = 25%

Solids feed concentration = 1.5%

Total volume of dewater sludge = $14,592 \text{ gallons} \times 1.5\% / 25\% / 7.48 \text{ gal/ft}^3 / 27 \text{ ft}^3/\text{yd}$
= 4.3 yd/day

Appendix C

SPA 5 Draft Construction Schedule

Activity ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	U	2005												2006												2007				
								SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY								
321C	MCC & Controls	98	98	29MAY06	04SEP06	64c																														
322C	Emergency Generatc	175	175	29MAY06	20NOV06	-20d																														
Construction																																				
400C	Construction Notice to Procee	0	0	03APR06		-34d																														
400E	Mobilization	14	14	03APR06	16APR06	-34d																														
401C	Survey & Layout Pla	4	4	17APR06	20APR06	-34d																														
402C	Excavation & Gradin	14	14	21APR06	04MAY06	-34d																														
403C	Pour Concrete Bottom Sle	14	14	05MAY06	18MAY06	-34d																														
403E	Pour Walls	60	60	19MAY06	18JUL06	-34d																														
404C	Set Weir Beam & Precast Pane	7	7	19JUL06	25JUL06	-34d																														
404E	Pour Topping Slal	21	21	26JUL06	15AUG06	-34d																														
405C	Backfill Tank	14	14	16AUG06	29AUG06	-34d																														
406C	Test Tanks	7	7	30AUG06	05SEP06	-34d																														
407C	Block Building	43	43	06SEP06	18OCT06	-34d																														
408C	Roof Trusses & Roo	14	14	19OCT06	01NOV06	-28d																														
409C	Exterior Doors & Window	14	14	02NOV06	15NOV06	-28d																														
410C	Start Interior Framing, Blockin	40	40	10NOV06	19DEC06	-28d																														
410E	Drywall	28	28	20DEC06	18JAN07	2d																														
411C	HVAC & Plumbinc	48	48	29NOV06	17JAN07	13c																														
412C	Process Equipment Tanks Inst	40	40	19OCT06	27NOV06	-34d																														
413C	Process Equipment Bldg insta	81	81	22NOV06	12FEB07	-34d																														
413E	Complete interior work Drywall e	10	10	13FEB07	22FEB07	-23d																														
414C	Electrical Slab	4	4	06SEP06	09SEP06	52c																														
414E	Install Generator & Electrical Serv	21	21	21NOV06	11DEC06	-20d																														
415C	Electrical MCC & Equipmen	14	14	06DEC06	19DEC06	-28d																														
416C	Wiring from Panels to devices and la	47	47	20DEC06	06FEB07	-28d																														
417C	Land wires at PLC	14	14	13FEB07	26FEB07	-34d																														
418C	Dry Test Equipment and PL	7	7	27FEB07	05MAR07	-34d																														
419C	Install Computer and Tes	7	7	27FEB07	05MAR07	-34d																														
420C	Plant Ready for Startup & Clearwater Te	0	0		05MAR07	-34d																														
Hardscape and final Clean up																																				
451C	Final Grading & Site Clean u	7	7	16NOV06	22NOV06	36c																														
452C	Install Curb & Gutte	14	14	23NOV06	06DEC06	36c																														
453C	Drive Stone & Aspha	10	10	07DEC06	16DEC06	36c																														
454C	Backfill Curb & Dress Siti	7	7	17DEC06	23DEC06	36c																														
Clean Water Test & Substantian Completion																																				
500C	Fill Tanks with Clear Wate	5	5	06MAR07	10MAR07	-34d																														
501C	Manuf Equipment Start t	14	14	11MAR07	24MAR07	-34d																														
502C	Clear Water Tesi	14	14	21MAR07	03APR07	-34d																														
502E	Substantial Completio	0	0		03APR07	-34d																														
Final Completion																																				
460C	Punch List And Final Clean L	30	30	04APR07	03MAY07	-34d																														
461C	Final Completior	0	0		03MAY07	-34d																														
Plant Start Up																																				
502E	County Approval of Pla	0	0	04MAY07		-34d																														
503C	Begin Vault & Hal	0	0	04MAY07		-34d																														
503E	Influent Flow & Seeding of Pla	0	0	04MAY07	03MAY07	-34d																														
504C	Performance Testin	0	0	04MAY07	03MAY07	-34d																														

Start date01SEP05

Finish date03MAY07

Data date01SEP05

Run date22AUG05

Page number2A

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Pacific Environmental Resource Corp

SPA 5 WRF

Broadstone Ranch

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point

CDR

Appendix D

City of Surprise and SPA 5 Development Group's Financial Statements

Bank of America.

April 10, 2006

Bank of America
Home Builder Division
2990 Lava Ridge Court, Suite 120
Roseville, CA 95661-3076

Richard Williams, Sr.
City of Surprise
12425 W. Bell Road, Suite D-100
Surprise, AZ 85374-9002

Re: Elliott Homes - Spa 5 Developer Group

Dear Mr. Williams:

At the request of the City of Surprise, the purpose of this letter is to briefly summarize the banking relationship between Elliott Homes and Bank of America.

Bank of America has had a banking relationship with Elliott Homes for over 25 years and has satisfactorily performed under all of its obligations during this time period. Elliott Homes has more than adequate credit availability to fund the cost of a new waste water reclamation facility at an estimated cost of \$10 million plus any cost overruns.

Elliott Homes is a valued relationship to the Bank and we look forward to a continued relationship with this entity and its owners.

Should you need any additional information, please let me know.

Sincerely,

Dick Carter
Senior Vice President
(916) 772-4477



(b)(6) (b)(7)(C)

** TOTAL PAGE.02 **

City of Surprise
Financial Statement Memo



**CITY OF SURPRISE
WATER SERVICES DEPARTMENT**

MEMORANDUM

To: Brenda Day
MAG

From: Rich Williams, Sr. *RAW*
Water Services Director
City of Surprise

Date: 7/27/04

The City of Surprise is committed to meeting the growth projections enhancement with its General Plan of Development. As a full service municipality providing a complete operational sewage system, the City has sanitary sewer personnel on its staff that is versed in all aspects of sanitary sewer service from maintenance and repair of its collection system to operations of its wastewater treatment facilities.

As further evidence of the City's intention in meeting its growth projections several key growth policies have been recently approved through City Council actions including the Integrated Water Master Plan (for both potable water and sanitary sewer); Special Development Planning Areas, SPA 1- SPA 6 that give further substance to the above mentioned Master Plan; and a policy that outlines a Sanitary Sewer System Development Fee structure to be used in conjunction with planned area development.

These fees have been structured to meet future City obligations with regard to both, capital improvement projects as well as sewer service fees to the City's citizens that we are structured to meet future operational needs and meet the City's financial obligations.



CITY OF SURPRISE
COUNCIL AGENDA ACTION FORM

#8

Meeting Type: Regular Meeting Time Scheduled: May 27, 2004 7:00 PM
If Special submit date time
Submitting Department: Finance Contact Person: Robert Nilles
Consent ☐ Regular ☐ Requesting Action ☒ Report Only ☐

Type of Document Needing Approval (Check all that apply):

- | | | |
|---|--|---|
| <input type="checkbox"/> Public Hearing | <input type="checkbox"/> Resolution | <input type="checkbox"/> First Reading/Ordinance |
| <input type="checkbox"/> Agreement | <input type="checkbox"/> Emergency Clause | <input checked="" type="checkbox"/> Final Reading/Ordinance |
| <input type="checkbox"/> Special Consideration | <input type="checkbox"/> Intergovernmental Agreement | |
| <input type="checkbox"/> Grant | <input type="checkbox"/> Submission | <input type="checkbox"/> Acceptance |
| <input type="checkbox"/> Liquor/Bingo License Application | | |

Council Priority (Check Appropriate Areas):

- | | | |
|--|---|---|
| <input type="checkbox"/> Education | <input type="checkbox"/> Public Fitness | <input type="checkbox"/> Neighborhood Revitalization |
| <input type="checkbox"/> Job Creation | <input type="checkbox"/> Quality Service Delivery | <input type="checkbox"/> Employment Infrastructure |
| <input type="checkbox"/> Public Safety | <input type="checkbox"/> Housing Rehabilitation | <input type="checkbox"/> Work Force Preparation |
| <input type="checkbox"/> Transportation | <input type="checkbox"/> Human Service Needs | <input type="checkbox"/> Parks, Recreation & Library |
| <input checked="" type="checkbox"/> City Revenue | <input type="checkbox"/> Community Activities | <input checked="" type="checkbox"/> Public Infrastructure |

Regular Agenda Wording: Consideration and action to approve Ordinance #04-24
an ordinance repealing Chapters 15.08 and 15.12 and Sections 13.04.280, 13.04.290,
13.04.300, 13.04.310, 13.04.320, 13.08.660, 13.08.670, 13.08.680, 13.08.690 and 13.08.700 of
Surprise Municipal Code; and adding Chapter 15.10 adopting the new Development Fee Study and
development fees.

Staff Recommendation: Approve Fiscal Impact: Yes, increasing development fees will increase the
revenue produced for capital improvements
related to new development.

Background Information: The new Development Fee Study updates all of the City's current fees. This
Ordinance will adopt the Development Fee Study and the new development fees, and make numerous
clean-up revisions to the existing Municipal Code sections related to development fees. The
Development Fee Study is on file with the City Clerk and was provided to the Council in January
2004.

List Attachments as Follows: Ordinance #04-24; Figure 1: Schedule of Maximum Supportable
Development Fees - Page 4 of Tischler & Associates Development Impact Fee Study; Council
Communication

Signatures of Submitting Officers (Sign Legibly):

Department Head

Supervisor

Budget Authorization

Legal Review

City Manager/Designee

Distribution After Council Action: Council Action:

- Robert Nilles Motion/Second
- Agenda file Shafer

Results:

For 7
Against 0

SURPRISE, ARIZONA DEVELOPMENT FEE STUDY

Figure 1: Schedule of Maximum Supportable Development Fees

All Development - North (SPA's 2-5)		Water Resources	Water System	Wastewater	TOTAL
Meter Size (inches)	Type				
0.75	Displacement	\$456	\$2,879	\$2,245	\$5,580
1.00	Displacement	\$580	\$3,665	\$2,841	\$7,086
1.50	Displacement	\$1,505	\$9,506	\$7,272	\$18,283
2.00	Displacement	\$2,406	\$15,199	\$11,590	\$29,195
3.00	Compound	\$4,864	\$30,718	\$23,363	\$58,945
3.00	Turbine	\$5,455	\$34,451	\$26,194	\$66,100
4.00	Compound	\$7,748	\$48,931	\$37,178	\$93,857
4.00	Turbine	\$9,346	\$59,023	\$44,834	\$113,203
6.00	Compound	\$15,052	\$95,062	\$72,171	\$182,285
6.00	Turbine	\$18,789	\$118,661	\$90,073	\$227,523
8.00	Compound	\$24,320	\$153,592	\$116,571	\$294,483
8.00	Turbine	\$27,435	\$173,265	\$131,494	\$332,194

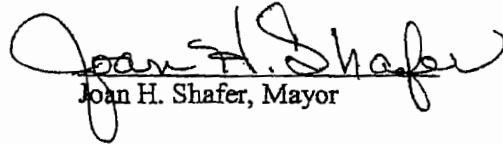
All Development - South (SPA 1)		Water Resources	Water System	Wastewater	TOTAL
Meter Size (inches)	Type				
0.75	Displacement	\$456	\$2,879	\$1,808	\$5,143
1.00	Displacement	\$580	\$3,665	\$2,284	\$6,529
1.50	Displacement	\$1,505	\$9,506	\$5,827	\$16,838
2.00	Displacement	\$2,406	\$15,199	\$9,281	\$26,886
3.00	Compound	\$4,864	\$30,718	\$18,696	\$54,278
3.00	Turbine	\$5,455	\$34,451	\$20,961	\$60,867
4.00	Compound	\$7,748	\$48,931	\$29,744	\$86,423
4.00	Turbine	\$9,346	\$59,023	\$35,867	\$104,236
6.00	Compound	\$15,052	\$95,062	\$57,730	\$167,844
6.00	Turbine	\$18,789	\$118,661	\$72,046	\$209,496
8.00	Compound	\$24,320	\$153,592	\$93,237	\$271,149
8.00	Turbine	\$27,435	\$173,265	\$105,172	\$305,872

All Development - Citywide		Libraries	Parks & Recreation	Police	Fire	Public Works	General Gov't	TOTAL
Residential								
<u>Per Housing Unit</u>								
Single Family Detached		\$266	\$1,127	\$424	\$454	\$885	\$314	\$3,470
Single Family Attached/Multi-Family		\$224	\$948	\$357	\$382	\$437	\$265	\$2,614
All Other Housing Types		\$235	\$995	\$375	\$401	\$458	\$278	\$2,743
Nonresidential								
<u>Per Thousand Square Feet of Floor Area</u>								
Corn / Shop Ctr 25,000 SF or less	N/A	N/A	\$2,065	\$1,405	\$683		\$311	\$4,464
Corn / Shop Ctr 25,001-50,000 SF	N/A	N/A	\$1,905	\$1,204	\$586		\$267	\$3,962
Corn / Shop Ctr 50,001-100,000 SF	N/A	N/A	\$1,659	\$1,053	\$512		\$233	\$3,457
Corn / Shop Ctr 100,001-200,000 SF	N/A	N/A	\$1,429	\$936	\$455		\$207	\$3,027
Corn / Shop Ctr over 200,000 SF	N/A	N/A	\$1,221	\$843	\$410		\$186	\$2,660
Office / Inst 10,000 SF or less	N/A	N/A	\$950	\$1,850	\$900		\$410	\$4,110
Office / Inst 10,001-25,000 SF	N/A	N/A	\$768	\$1,703	\$828		\$377	\$3,676
Office / Inst 25,001-50,000 SF	N/A	N/A	\$654	\$1,597	\$777		\$354	\$3,382
Office / Inst 50,001-100,000 SF	N/A	N/A	\$556	\$1,505	\$732		\$333	\$3,126
Office / Inst over 100,000 SF	N/A	N/A	\$474	\$1,412	\$687		\$313	\$2,886
Business Park	N/A	N/A	\$535	\$1,332	\$648		\$295	\$2,810
Light Industrial	N/A	N/A	\$292	\$973	\$474		\$215	\$1,954
Warehousing	N/A	N/A	\$208	\$539	\$262		\$119	\$1,128
Manufacturing	N/A	N/A	\$160	\$767	\$373		\$170	\$1,470

Section 4. This Ordinance #04-24 shall be codified.

Section 5. Staff is hereby directed to conduct the next development fee study 18 months following the adoption of this Ordinance #04-24.

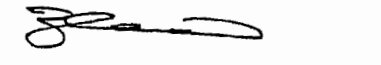
PASSED AND ADOPTED this 27 day of May, 2004.


Joan H. Shafer, Mayor

ATTEST:

APPROVED AS TO FORM:


Sherry Aguilar, City Clerk


Jeffrey M. Blilie, City Attorney

Yeas: Mayor Shafer, Vice-Mayor Cox, Council Members; Allen, Bails, Arismendez, Sullivan & Vukanovich.

Nays: _____

a. Qualifying commercial and/or industrial developments within the Original Town Site Infill District shall receive a one hundred percent waiver of building permit and building plan review fees.

b. Qualifying commercial and/or industrial developments within the Original Town Site Infill District generating sales tax shall be eligible to receive a one time fifty percent rebate of the city's sales tax apportionment during its first full year of operation. Applicants must apply for annual sales tax rebate in January for the previous calendar year sales tax revenues. Upon approval by the City Manager or designee, rebates shall be calculated and disbursed within 45 days of receipt of the application.

c. Qualifying commercial and/or industrial developments within the Original Town Site Infill District shall be eligible to receive expedited plan review services. Commercial site plans, commercial subdivision plats, landscape plans, civil plans and building plans shall be reviewed within a maximum of twelve business days from date of submittal to issuance of redline or administrative comments. The city shall bear all cost associated with the expedited review process.

d. Qualifying Commercial and/or industrial developments within the Original Town Site Infill District shall be eligible to receive expedited administrative processing for rezones when possible. Administrative processes will be accelerated to facilitate advancing the project to the Planning and Zoning Commission and City Council.

C. Persons developing commercial property within the Original Town Site Infill District wishing to receive incentives under the Original Town Site Infill Incentive Plan shall submit an application to the Community and Economic Development Director ("CEDD"). The CEDD shall process the request and make recommendations to City Council for final approval. If approved, the CEDD shall administer the Original Town Site Infill Incentive Plan.

15.10.070 Expanding existing businesses. In order to be considered an expanding existing business, a business must demonstrate all of the following requirements:

1. Facility expansion of at least an additional 1000 square feet.
2. A ten percent increase in employees.
3. For purposes of the sales tax rebate option, generation of sales tax and a twenty percent overall income increase by the end of the first full year of operation after expansion completion.

15.10.080 Penalties for violation. Any person found to have violated any provision of this chapter shall be guilty of a class 1 misdemeanor, punishable by a fine of up to \$2500 and six months in jail.

15.10.090 Procedure for violations. Every action to prosecute a violation of this chapter shall be processed in the manner provided in Chapter 1.18.

15.10.100 Jurisdiction of city court. The Surprise City Court shall have exclusive jurisdiction over all proceedings to enforce this chapter.

Development Fee Study. The development fees shall be annually adjusted to account for inflation using the index published by Engineering News Record.

B. The development fees set forth in the Development Fee Study shall be collected by the building inspector prior to the issuance of a building permit for the construction of any dwelling unit or commercial or industrial building or structure. The development fees with respect to any mobile, manufactured, or modular home space shall be collected prior to the issuance of a permit for the establishment of a mobile, manufactured, or modular home within a mobile home park or a manufactured housing subdivision. The development fees with respect to any recreational vehicle pad or travel trailer pad shall be collected prior to the issuance of a permit for the construction of a recreational vehicle or travel trailer park, or for the construction of a pad contained therein. The building inspector shall not issue a building permit until the applicable development fees have been paid.

C. In the event a building permit is issued for the enlargement, reconstruction, or remodel of an existing structure, the development fees may be reduced by giving a credit for previously paid development fees with regard to that unit or parcel, the purpose being to collect development fees when additional demand is created on the city services because of enlargement, reconstruction, removal or remodeling of a structure.

15.10.040 Disposition. A. All development fees collected shall be deposited into separate accounts according to the development fee category and shall not be commingled with the general fund revenues of the city.

B. The revenues generated by development fees shall be used for the purposes as identified in the Development Fee Study.

15.10.050 Exemptions. Development fees shall only be collected where services are provided by the city. For example, development located outside of the city's water service area shall not be assessed the development fees related to the provision of water. Additionally, commercial development shall not be assessed the park and recreation development fee, the library development fee or the sanitation portion of the public works development fee.

15.10.060 Infill incentive district. A. There is established, pursuant to the authority granted in A.R.S. §9-499.10(A), an infill incentive district in the area bounded by Bell Road to the north, El Mirage to the east, Greenway Road to the south and Dysart Road to the west. This district is designated as the Original Town Site Infill Incentive District.

B. Original town site infill incentive plan.

1. Residential development. All residential development within the Original Town Site Infill Incentive District shall receive a one hundred percent waiver of development fees.

2. Commercial development.

15.10.020	Development fee study.
15.10.030	Development fees.
15.10.040	Disposition.
15.10.050	Exemptions.
15.10.060	Infill incentive district.
15.10.070	Expanding existing businesses.
15.10.080	Penalties for violation.
15.10.090	Procedure for violation.
15.10.100	Jurisdiction of city court.

15.10.010 Definitions. The following words and phrases, shall have the meanings respectively ascribed to them in this section, unless from the content, a different meaning is clearly intended:

A. "Commercial development" and/or "industrial development" means all buildings and lots within the territorial limits of the city, other than single-family residences, multifamily residences, apartments, mobile home subdivisions, and recreational vehicle parks or other dwelling units.

B. "Dwelling unit" means a room or group of rooms within a building or structure containing cooking accommodations. An apartment, a mobile, manufactured or modular home, a recreational vehicle, and a travel trailer shall be considered a dwelling unit, but a motel room or hotel room is not considered a dwelling unit under the provisions of this chapter.

C. "Mobile, manufactured, or modular home space" means any lot or space contained in a mobile home park or manufactured housing subdivision.

D. "New Business" means new construction or fifty one percent (51%) reconstruction of the total building square footage of an existing building. For the purposes of this ordinance, a new business is not an existing business, which has only changed ownership.

E. "Qualifying Commercial and/or industrial developments" means new or expanding developments that will be: (i) legal and conforming upon project completion, (ii) in possession of all required development approvals pursuant to city process, procedures and policies, (iii) occupying vacant property or replacing dilapidated buildings, or if expanding will comply with the criteria for "expanding existing businesses."

F. "Recreational vehicle pad" or "travel trailer pad" means any lot or space contained in a recreational vehicle park.

15.10.020 Development fee study. The Development Fee Study, prepared by Tischler & Associates, dated January 23, 2004 and declared a public record by Resolution #04-105, is hereby adopted by the city and incorporated in this section by reference as though it had been fully and completely set forth in this section.

15.10.030 Development fees. A. The residential and commercial development fees shall be the maximum supportable fees as identified in the

ORDINANCE #04-24

**AN ORDINANCE OF THE MAYOR AND COUNCIL OF THE
CITY OF SURPRISE, ARIZONA, REPEALING CHAPTERS 15.08
AND 15.12 AND SECTIONS 13.04.280, 13.04.290, 13.04.300,
13.04.310, 13.04.320, 13.08.660, 13.08.670, 13.08.680, 13.08.690 AND
13.08.700 OF SURPRISE MUNICIPAL CODE; AND ADDING
CHAPTER 15.10 ADOPTING THE NEW DEVELOPMENT FEE
STUDY AND DEVELOPMENT FEES.**

WHEREAS, an updated Development Fee Study has been completed that addresses development fee levels within the City of Surprise, and;

WHEREAS, the Mayor and City Council's direction to staff has always been that new development should pay for itself, and;

WHEREAS, the fees contained in the new Development Fee are in accordance with the costs associated with providing the corresponding capital improvements, and;

WHEREAS, this Ordinance #04-24 will adopt by reference the new Development Fee Study and clean up a number of existing sections related to development fees;

NOW, THEREFORE, BE IT ORDAINED by the Mayor and City Council of the City of Surprise that:

Section 1. Chapters 15.08 and 15.12, and Sections 13.04.280, 13.04.290, 13.04.300, 13.04.310, 13.04.320, 13.08.660, 13.08.670, 13.08.680, 13.08.690 and 13.08.700 of the Surprise Municipal Code are hereby repealed.

Section 2. Article VI of Chapter 13.04 of the Surprise Municipal Code is hereby renumbered Article V.

Section 3. The following Chapter 15.10 is hereby added to the Surprise Municipal Code.

Chapter 15.10

DEVELOPMENT FEES & INFILL INCENTIVE DISTRICTS

Sections:

15.10.010 Definitions.

September 23, 2005
Rich Williams, Sr.
City of Surprise
12425 W. Bell Road, Suite D-100
Surprise, AZ 85374-9002

RE: SPA 5 Developer Group /SPA 5 MAG 208 Amendment Financing Requirement

Dear Mr. Williams,

This letter is submitted to you pursuant to the requirements for amendment of the MAG 208 water quality management plan for Maricopa County with respect to the City of Surprise Special Planning Area (SPA) 5 proposed water reclamation facility (WRF).

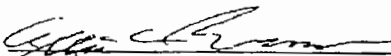
The SPA 5 Developer Group is in the process of separately entitling and developing the Broadstone Ranch (Elliott Homes), Walden Ranch (Woodside Homes), Rancho Maria (Anderson Land and Development) projects, including the design and construction of Phase 1 ("Developer Phase") of the SPA 5 WRF. It is intended that the SPA 5 Developer Group and the City will enter into a Development Agreement for the above-mentioned projects that will outline in detail the financial agreement between the parties with respect to this WRF, amongst other issues.

The SPA 5 Developer Group will contract and pay for the design and construction of the Developer Phase of the SPA 5 WRF which phase is estimated to provide approximately 1.2 million gallons per day of wastewater treatment capacity. The anticipated cost of this facility will be approximately \$9.5 million dollars. Upon completion, it is anticipated that the SPA 5 Developer Group will be reimbursed by the City for a portion or all of the costs incurred by the SPA 5 Developer Group related to the design and construction of the WRF through impact fee credits or some other appropriate means. This reimbursement will be specifically defined within the Development Agreement mentioned above.

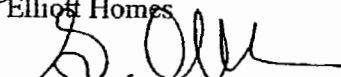
Financing of future phases of the SPA 5 WRF beyond the Developer Phase will be by the City of Surprise and/or other parties. The SPA 5 Developer Group shall have no further obligation for the financing of additional phases of the SPA 5 WRF beyond the Developer Phase.

Sincerely,
SPA 5 Developer Group,

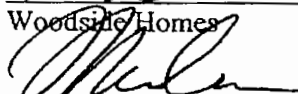
Namely:


Elliott Homes

Developer for Broadstone Ranch


Woodside Homes

Developer for Walden Ranch


Anderson Land and Development

Developer for Rancho Maria

Appendix E

Communication with ADEQ **Regarding Permitting**

Duong Do

From: Tito Comparan [Comparan.Tito@azdeq.gov]
Sent: Tuesday, October 04, 2005 3:48 PM
To: Duong Do
Subject: Re: SPA 5 APP Pre-application Meeting

Doung,

My meeting notes for May 19, 2005 refer to the Spa II WRF. However, I believe I do recall discussing the SPA 5 WRF which would be located in the same area (Surprise) and designed similarly to the SPA II WRF.

Tito

>>> "Duong Do" <ddo@p-a-c-e.com> 9/30/2005 3:28 PM >>>
Tito,

This email is in reference to the APP pre-application meeting held on May 19, 2005 for the SPA 5 WRF. Please confirm that ADEQ has been in contacted regarding the proposed SPA 5 WRF to be located in Surprise, AZ. We are aware that the SPA 5 WRF will need to be approved by Maricopa Association of Governments prior to receiving approval from ADEQ. If you have any questions, please feel free to contact me.

Thank you.

Duong Do, P.E.
Project Manager
Pacific Advanced Civil Engineering, Inc. (PACE)
17520 Newhope Street, Suite 200
Fountain Valley, CA 92708
General Office: 714-481-7300
Direct Line: 714-481-7223
Facsimile: 714-481-7299

Website: www.p-a-c-e.com <<http://www.p-a-c-e.com/>>
* PLEASE NOTE: This message, including any attachments, may include privileged, confidential and/or inside information. Any distribution or use of this communication by anyone other than the intended recipient(s) is strictly prohibited and may be unlawful. If you are not the intended recipient, please notify the sender by replying to this message and then delete it from your system. Thank you.

=====

PLEASE NOTE:

Effective September 30, 2005, the Arizona Department of Environmental Quality will no longer accept e-mail addressed to the ev.state.az.us domain.

All e-mail communications must be addressed to azdeq.gov (Comparan.Tito@azdeq.gov)

PUBLIC HEARING ON THE DRAFT MAG 208 WATER QUALITY MANAGEMENT PLAN AMENDMENTS FOR THE BALTERRA WASTEWATER TREATMENT FACILITY, CITY OF SURPRISE SPECIAL PLANNING AREA 4 REGIONAL WATER RECLAMATION FACILITY, AND CITY OF SURPRISE SPECIAL PLANNING AREA 5 REGIONAL WATER RECLAMATION FACILITY

Tuesday, June 27, 2006 at 3:00 p.m.

MAG Office, Suite 200 - Saguaro Room
302 North 1st Avenue Phoenix, Arizona 85003

The Maricopa Association of Governments (MAG) will conduct a public hearing on the Draft MAG 208 Plan Amendments for the Balterra Wastewater Treatment Facility, the City of Surprise Special Planning Area 4 Regional Water Reclamation Facility, and the City of Surprise Special Planning Area 5 Regional Water Reclamation Facility. The purpose of the hearing is to receive public comment on the draft amendments.

The proposed Balterra Wastewater Treatment Facility would have an ultimate capacity of 15 million gallons per day (mgd) and would be located in unincorporated Maricopa County in the northeast quadrant of 403rd Avenue and Indian School Road within Section 19 of Township 2 North, Range 6 West and Section 24 of Township 2 North, Range 7 West. Reclaimed water would be disposed of through reuse, recharge, and an Arizona Pollutant Discharge Elimination System (AZPDES) Permit discharge to the adjacent wash (T2N-R6W-30W as identified in the Palo Verde Watershed Zone A Flood Delineation Study). The AZPDES Permit discharge point would be located along the northeast edge of the proposed facility site, near the confluence of the adjacent wash and Winters Wash.

The proposed Surprise Special Planning Area 4 Regional Water Reclamation Facility would have an ultimate capacity of 8 mgd and would be located in the northwest quarter of Section 28 of Township 5 North, Range 2 West. Reclaimed water would be disposed of through reuse, recharge, and potential future AZPDES Permit discharge points to the Agua Fria River or unnamed washes located south of the facility and west of the Agua Fria River (northwest quarter of Section 28 of Township 5 North, Range 2 West).

The proposed Surprise Special Planning Area 5 Regional Water Reclamation Facility would have an ultimate capacity of 8 mgd and would be located in the southwest quarter of Section 36 of Township 5 North, Range 3 West. Reclaimed water would be disposed of through reuse, recharge, and potential future AZPDES Permit discharge points to the Hassayampa River, Trilby Wash, or an unnamed wash east of the facility (southwest quarter of Section 36 of Township 5 North, Range 3 West).

Following consideration of comments received, it is anticipated that the MAG Water Quality Advisory Committee will make a recommendation to the MAG Management Committee. On July 12, 2006, the MAG Management Committee is anticipated to make a recommendation to the MAG Regional Council. It is anticipated that the MAG Regional Council will take action on the draft plan amendments on July 26, 2006.

The draft documents will be available for public review at the MAG Office from 8:00 a.m. to 5:00 p.m. Monday through Friday beginning May 8, 2006. Copies will also be available for review at the Glendale Public Library, 5959 W. Brown Street; City of Mesa Library, 64 E. First Street; and Phoenix Central Public Library, 1221 N. Central Avenue. Public comments are welcome at the hearing, or may be submitted in writing by 3:00 p.m. on June 27, 2006 to MAG staff at the address below.

Contact: Person: Julie Hoffman
302 North 1st Avenue, Suite 300
Phoenix, Arizona 85003
Fax: (602) 254-6490

THE ARIZONA REPUBLIC

STATE OF ARIZONA }
COUNTY OF MARICOPA } SS.

Tabitha Antoniadis, being first duly sworn, upon oath deposes and says: That she is a legal advertising representative of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published at Phoenix, Arizona, by Phoenix Newspapers Inc., which also publishes The Arizona Republic, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates as indicated.

The Arizona Republic

May 5, 2006

Sworn to before me this
5TH day of
May A.D. 2006



[Signature]
[Signature]
Notary Public

May 8, 2006

TO: Interested Parties for Water Quality

FROM: Julie Hoffman, Environmental Planner

SUBJECT: PUBLIC HEARING ON THE DRAFT MAG 208 WATER QUALITY MANAGEMENT PLAN AMENDMENTS FOR THE BALTERRA WASTEWATER TREATMENT FACILITY, CITY OF SURPRISE SPECIAL PLANNING AREA 4 REGIONAL WATER RECLAMATION FACILITY, AND CITY OF SURPRISE SPECIAL PLANNING AREA 5 REGIONAL WATER RECLAMATION FACILITY

Public Hearing

June 27, 2006 at 3:00 p.m.

MAG Office, Saguaro Room

302 North 1st Avenue, Second Floor

Phoenix, Arizona 85003

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The proposed Surprise Special Planning Area 4 Regional Water Reclamation Facility would have an ultimate capacity of 8 mgd and would be located in the northwest quarter of Section 28 of Township 5 North, Range 2 West. Reclaimed water would be disposed of through reuse, recharge, and potential future AZPDES Permit discharge points to the Agua Fria River or unnamed washes located south of the facility and west of the Agua Fria River (northwest quarter of Section 28 of Township 5 North, Range 2 West).

A Voluntary Association of Local Governments in Maricopa County

The proposed Surprise Special Planning Area 5 Regional Water Reclamation Facility would have an ultimate capacity of 8 mgd and would be located in the southwest quarter of Section 36 of Township 5 North, Range 3 West. Reclaimed water would be disposed of through reuse, recharge, and potential future AZPDES Permit discharge points to the Hassayampa River, Trilby Wash, or an unnamed wash east of the facility (southwest quarter of Section 36 of Township 5 North, Range 3 West).

For your information and convenience, a copy of the public hearing notice is enclosed. The draft documents are available for public review at the MAG Office, third floor from 8:00 a.m. to 5:00 p.m. Monday through Friday. Copies are also available for review at the Glendale Public Library, 5959 West Brown Street; City of Mesa Library, 64 East First Street; and Phoenix Central Public Library, 1221 North Central Avenue. For further information or to submit written comments on the draft amendments prior to the hearing, please contact me at (602) 254-6300.

**PUBLIC HEARING ON THE DRAFT MAG 208 WATER QUALITY MANAGEMENT PLAN
AMENDMENTS FOR THE BALTERRA WASTEWATER TREATMENT FACILITY, CITY OF
SURPRISE SPECIAL PLANNING AREA 4 REGIONAL WATER RECLAMATION FACILITY,
AND CITY OF SURPRISE SPECIAL PLANNING AREA 5 REGIONAL WATER
RECLAMATION FACILITY**

Tuesday, June 27, 2006 at 3:00 p.m.
MAG Office, Suite 200 - Saguaro Room
302 North 1st Avenue
Phoenix, Arizona 85003

The Maricopa Association of Governments (MAG) will conduct a public hearing on the Draft MAG 208 Plan Amendments for the Balterra Wastewater Treatment Facility, City of Surprise Special Planning Area 4 Regional Water Reclamation Facility, and City of Surprise Special Planning Area 5 Regional Water Reclamation Facility. The purpose of the hearing is to receive public comment on the draft amendments.

The proposed Balterra Wastewater Treatment Facility would have an ultimate capacity of 15 million gallons per day (mgd) and would be located in unincorporated Maricopa County in the northeast quadrant of 403rd Avenue and Indian School Road within Section 19 of Township 2 North, Range 6 West and Section 24 of Township 2 North, Range 7 West. Reclaimed water would be disposed of through reuse, recharge, and an Arizona Pollutant Discharge Elimination System (AZPDES) Permit discharge to the adjacent wash (T2N-R6W-30W as identified in the Palo Verde Watershed Zone A Flood Delineation Study). The AZPDES Permit discharge point would be located along the northeast edge of the proposed facility site, near the confluence of the adjacent wash and Winters Wash.

The proposed Surprise Special Planning Area 4 Regional Water Reclamation Facility would have an ultimate capacity of 8 mgd and would be located in the northwest quarter of Section 28 of Township 5 North, Range 2 West. Reclaimed water would be disposed of through reuse, recharge, and potential future AZPDES Permit discharge points to the Agua Fria River or unnamed washes located south of the facility and west of the Agua Fria River (northwest quarter of Section 28 of Township 5 North, Range 2 West).

The proposed Surprise Special Planning Area 5 Regional Water Reclamation Facility would have an ultimate capacity of 8 mgd and would be located in the southwest quarter of Section 36 of Township 5 North, Range 3 West. Reclaimed water would be disposed of through reuse, recharge, and potential future AZPDES Permit discharge points to the Hassayampa River, Trilby Wash, or an unnamed wash east of the facility (southwest quarter of Section 36 of Township 5 North, Range 3 West).

Following consideration of comments received, it is anticipated that the MAG Water Quality Advisory Committee will make a recommendation to the MAG Management Committee. On July 12, 2006, the MAG Management Committee is anticipated to make a recommendation to the MAG Regional Council. It is anticipated that the MAG Regional Council will take action of the draft plan amendments on July 26, 2006.

The draft documents will be available for public review at the MAG Office from 8:00 a.m. to 5:00 p.m. Monday through Friday beginning May 8, 2006. Copies will also be available for review at the Glendale Public Library, 5959 W. Brown Street; City of Mesa Library, 64 E. First Street; and Phoenix Central Public Library, 1221 N. Central Avenue. Public comments are welcome at the hearing, or may be submitted in writing by 3:00 p.m. on June 27, 2006 to MAG staff at the address below.

Contact Person:

Julie Hoffman

302 North 1st Avenue, Suite 300

Phoenix, Arizona 85003

Fax: (602) 254-6490

JUL 06 2006

PUBLIC HEARING ON THE DRAFT MAG 208
WATER QUALITY MANAGEMENT PLAN AMENDMENTS
FOR THE BALTERRA WASTEWATER TREATMENT FACILITY,
CITY OF SURPRISE SPECIAL PLANNING AREA 4
REGIONAL WATER RECLAMATION FACILITY, AND
CITY OF SURPRISE SPECIAL PLANNING AREA 5
REGIONAL WATER RECLAMATION FACILITY

Phoenix, Arizona

June 27, 2006

3:11 p.m.

Glennie
Reporting Services

5333 North 7th Street
Suite B110
Phoenix, Arizona 85014-2840

(602) 266-6535 Phone
(602) 266-9661 Fax

Prepared by:
Marianne S. Burton, RPR
Arizona Certified
Reporter No. 50519

(Original)

1 The Public Hearing was taken on June 27, 2006,
2 at 3:11 p.m., at the offices of the Maricopa Association
3 of Governments, 302 North 1st Avenue, Suite 200,
4 Phoenix, Arizona, before Marianne S. Burton, RPR, a
5 Certified Reporter, Certificate No. 50519.

6

7 Committee Members Present:

8 Roger Klingler, City of Scottsdale, Chair
9 Lucky Roberts, Town of Buckeye
10 Chris Ochs, City of Glendale
11 David Iwanski, City of Goodyear
12 Robert Hollander, City of Phoenix
13 Rich Williams, Sr., City of Surprise
14 David McNeil, City of Tempe
15 Dale Bodiya for John Power, Maricopa County
16 Maria Mahar for John Boyer, Pinnacle West Capital
17 Eugene Jensen, Citizen Representative

18

19 Committee Members Attending by Telephone Conference Call:

20 Jacqueline Strong, City of Chandler
21 Bill Haney, City of Mesa

22

23 Others Present:

24 Edwina Vogan, Arizona Department of Environmental Quality
25 Michael Salisbury, Town of Buckeye

1 Others Present, Continued:

2 Ken James, Maricopa County

3 James Shano, City of Surprise

4 Paul Gilbert, Beus Gilbert

5 Felipe Zubia, Beus Gilbert

6 John Tyldesley, CSA Engineering

7 Peter Chan, CSA Engineering

8 Mike Kocourek, Element Homes

9 Garry Hays, Gallagher & Kennedy

10 Robin Bain, Global Water/Hassayampa Utilities Company

11 James Condit, JF Properties

12 Keith Watkins, JF Properties

13 Steve Owen, Pacific Environmental Resources Corporation

14 Bryan O'Reilly, Sierra Negra Ranch

15 Julie Hoffman, Maricopa Association of Governments

16 Ann Wimmer, Maricopa Association of Governments

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* * *

MR. KLINGLER: Now we're going to open our public hearing on the Draft MAG 208 Plan Amendment for the -- we have three of them: One for the Balterra Wastewater Treatment Facility, one for the City of Surprise Special Planning Area 4 Regional Water Reclamation Facility, and the City of Surprise Special Planning Area 5 Regional Water Reclamation Facility.

What we'll do is begin on a briefing on each draft amendment, and then after that, any hearing participants are invited to make comment for the public record.

We do have a court reporter present to provide an official record of the hearing. Written comments are also welcome. For those that wish to speak on the draft amendments, please fill out a yellow card and hand it in to Julie, here, of the MAG staff. And I believe people have done that.

And what we will do is, we will hear presentations on all three, and then we'll go to the public comment. So we'll do it that way.

So I believe Paul Gilbert and Peter Chan of CSA are going to start with the Balterra amendment.

Correct, Paul? Are you going to do that?

MR. GILBERT: Sure.

1 One minor change, we have Jim Condit instead
2 of Peter. But Peter is here and available to answer
3 questions.

4 For your record, my name is Paul Gilbert,
5 4800 North Scottsdale Road. I'm here on behalf of
6 Balterra, and Jim will be assisting me in answering the
7 technical questions.

8 MR. CONDIT: Mr. Chair, my name is
9 Jim Condit. I'm with JF Properties. I'm a
10 water/wastewater engineer. I've been working in the
11 Valley since the
12 mid '80s.

13 MR. GILBERT: This is a request to amend the
14 MAG 208 plan. We're here basically because when we came
15 in, we had a development. The County said: You need to
16 expand and provide for a larger area; we did that. So
17 we're here at the request of the County. They asked us
18 to expand the service area to serve more than just our
19 project, which we willingly did.

20 And significantly -- and you may hear me say
21 this several times -- we're here with the sponsorship of
22 the County. They are basically sponsoring our request,
23 and we're here fully in conformance to their request to
24 include the new wastewater treatment plant and to pursue
25 this MAG 208 amendment.

1 You've heard some of this before, so with
2 your permission, Mr. Chairman, I'm going to go through
3 this very quickly, not wanting to be redundant, although
4 paid by the word, it's a temptation to do so. I'll wrap
5 this up fairly quickly just because most of you have
6 heard it before.

7 The ownership, operation, and financing is
8 with JF Properties. The ownership will be Balterra Sewer
9 Corporation, and the operation will be by Balterra Sewer
10 Corporation, with a State certified operator.

11 Little bit about the Balterra Sewer
12 Corporation: We'll provide a private utility company
13 regulated by the Arizona Corporation Commission.

14 Significantly, the Arizona Corporation
15 Commission has already issued a Certificate of
16 Convenience and Necessity defining the initial area to be
17 served, and that area is the Balterra development itself,
18 as well as the Ruth Fisher School District. So we have
19 the CC&N; that's already been issued. I can't emphasize
20 that enough as we reason together on this application
21 here today.

22 We will operate the facility in accordance
23 with APP, and all permits will be issued by the Arizona
24 Department of Environmental Quality.

25 The treatment facility is at the 90 percent

1 design phase. We have also received the Arizona
2 Department of Water Resources' availability notice for
3 groundwater, and we have submitted the application for
4 the Aquifer Protection Permit with ADEQ.

5 If it appears to you we are well down the
6 road, that is absolutely the case.

7 Our next PowerPoint shows basically the
8 vicinity map and the precise discharge location. We are
9 asking for a relatively small area for this MAG 208 plan
10 amendment. It is in the southeast portion of the Tonopah
11 Wastewater Planning Area, and that is indicated in the
12 blue stripe. That is the only area that we are
13 requesting service in the MAG 208 Amendment.
14 Significantly, we are not asking for the northeast or the
15 west planning area to be included.

16 We included this -- and again, you may hear
17 this ad nauseam from me in this presentation. We
18 included this because that's what the County asked us to
19 do. So we're here again proposing to serve an area in
20 complete conformance with what the County had requested.

21 I'm aware that the Saddle Mountain Unified
22 School District is in a serious problem which needs to be
23 corrected as soon as possible. I think that they are in
24 the position they want to ride the horse that's going to
25 get there the fastest. They have given us a letter

1 indicating their support to be included in this district,
2 and significantly, they are part of the CC&N that has
3 been awarded by the Arizona Corporation Commission.

4 The population of this area by 2026 will be
5 150,000 people. We have broken that down; won't go into
6 a lot of detail there.

7 The wastewater treatment facility will be
8 designed in phases, capable to expand to accommodate the
9 ultimate buildout of the entire service area. We've
10 allocated enough land for that to take place and, as the
11 County required, we ensured that we had this capability
12 to expand beyond the Ruth Fisher School District and our
13 own facility.

14 The wastewater flows by gravity to the
15 treatment plant. We have sufficient setbacks, effective
16 use of the land, and we are very close, of course, to the
17 discharge location.

18 Our Corporation was formed with the ACC, and
19 the ACC approved, again, as I mentioned before, in June,
20 our CC&N.

21 Significantly, the Maricopa County Board of
22 Supervisors has also authorized the sewer franchise for
23 the Balterra Sewer Corporation. So that is behind us as
24 well.

25 We can talk about the facility design. We

1 went through this before with you. If you have any
2 questions, we can go through it in detail. If you don't
3 have any, we'll move on.

4 Seeing none, we'll keep going.

5 Again, we have the outline of how the
6 wastewater treatment facility will operate. Jim is dying
7 to talk on that, but I don't think it's necessary.

8 Here are standards, and we went through this
9 with you last time we appeared. Again, if you have some
10 specific questions, we can go over them, but I think we
11 meet all requirements in that regard. And, as Jim
12 whispers in my ear, we're Class A+. So we can skip the
13 permitting and other requirements.

14 We're on track. We've indicated where we
15 are. Here is our schedule. We've been working on the
16 design since December of 2005 up to date. We are in the
17 process of obtaining County approval. Our startup is
18 fall of 2008.

19 Our effluent disposal, again we talked about
20 that last time. Here's a quick summary of it. Happy to
21 go over that in detail if there are any questions.

22 Mr. Williams is pondering that, so while he
23 ponders, I'll move on if there are no other questions.

24 So we're here again requesting approval of
25 the 208 amendment. And let me just summarize, then, our

1 position and where we're at.

2 Mr. Chairman, I've not had opposition at
3 these hearings before. Do we get an opportunity to
4 respond to the opposition later on?

5 MR. KLINGLER: Yes. We can certainly
6 provide that. I think what we'll do is, if you want
7 to -- you made some points, I think, in anticipation
8 already. If there's anything else you want to add at
9 this time, and then after we hear the public testimony,
10 we'll give you an opportunity to discuss it some more. I
11 think that's fair.

12 MR. GILBERT: I think the bottom line is
13 we're well down the road. We're here with County
14 sponsorship, with Maricopa County approval of the
15 franchise, and with the CC&N from the Arizona Corporation
16 Commission and a plant that's 90 percent designed. I
17 think those are the highlights of our position.

18 MR. KLINGLER: Okay. Appreciate that.

19 Is that -- are you ready for questions at
20 this point? If not, what we'll do is, we'll have you
21 hang loose and come back after we hear some other
22 testimony, unless there is any questions at this point
23 from the Committee.

24 We probably will. Appreciate that. If you
25 just would hang around.

1 MR. GILBERT: We'll be here.

2 MR. KLINGLER: Thank you.

3 Let's go on with the other presentations.

4 Rich, did you want to introduce Steve Owen
5 of PERC, or did you want him to step up, or how do you
6 want to do this?

7 MR. WILLIAMS: If it's acceptable,
8 Mr. Chairman, I'd like to just say a few words for the
9 record since it is the public hearing, before Steve Owen,
10 with PERC, does the presentation again.

11 Both of these amendments, the Special
12 Planning Area 4 and Special Planning Area 5, are City
13 amendments. They're very similar to Special Area 1, 2,
14 and 3 that we've already brought before this board and
15 amended over the last few years. They're part of the
16 City's general plan, 2020 Municipal Planning Area,
17 approximately 300 square miles. That City of Surprise
18 Municipal Planning Area has an integrated water master
19 plan where the water resources, water and wastewater
20 systems and infrastructure, had been identified at the
21 master plan level.

22 The City of Surprise is moving forward with
23 a general plan five-year midterm amendment to capture the
24 recent aggressive development that's going on since 2001
25 when the plan was approved by the voters. Following

1 that, that mid five-year term amendment, we would be
2 updating, in fiscal year 2007, our existing integrated
3 water master plan to match the densities and the
4 expectations of the amendment.

5 We're partnering with the developers in this
6 effort. Many of these developments are currently
7 unincorporated county areas; however, we're actively
8 negotiating pre-annexation development agreements that
9 would provide -- the City would be the sewer service
10 provider in these areas until the mandate within the
11 preannexation development agreement would require
12 annexation once the connectivity in the annexation
13 formula is satisfied.

14 If there are any questions, I think Steve
15 could make the presentation.

16 MR. KLINGLER: Steve.

17 MR. OWEN: Thank you.

18 I appreciate the opportunity to be here
19 today and to walk you through the City of Surprise SPA-4
20 Regional Water Reclamation Facility and our plans for
21 that and the City's plans for that.

22 As I mentioned before, the City of
23 Surprise -- as also Rich just mentioned -- has the
24 various planning areas, and the SPA-4 is one of now six
25 areas for new water reclamation facilities. SPA-4 will

1 serve Sunhaven and other developments located in that
2 area. We'll talk about those developments and then the
3 population and the wastewater projection for that area
4 for SPA-4. We'll talk about the specifics of the SPA-4
5 water reclamation facility as well as what our plans are
6 and the City's plans are for that effluent disposal.

7 The financing initially on the design, build
8 and startup O&M will come from Sunhaven I, LLC. The
9 ownership will then be transferred, upon completion,
10 substantial completion of the facility, to the City of
11 Surprise, and operations will then continue on an ongoing
12 basis through City of Surprise city staff and/or contract
13 operations.

14 This lays out the different planning areas.
15 I don't have my pointer, but SPA-4 is this area here,
16 north of SPA-2. And both SPA-2 and SPA-3 have already
17 been approved through 208 amendments.

18 So SPA-4 is this area here. The Sunhaven
19 development is outlined there in the red. The water
20 reclamation facility will be there as it's indicated on
21 the map.

22 As far as population, population of about --
23 64,000 is the population in the SPA-4 area, the dwelling
24 units of about 22,000 -- close to 23,000 dwelling units.

25 Phase 1 will be a 1.2 MGD initial developer

1 phase that you see there indicated on the site.
2 Ultimately, the plant, the regional facility will expand
3 up to -- again, ultimately, it will expand to
4 8 MGD for capacity in that area, in the SPA-4 area.

5 Why this site was selected is simply because
6 the wastewater flows by gravity to the treatment
7 facility. It's close to the discharge locations. It
8 meets sufficient setbacks, and it's an effective use of
9 this land.

10 Again, as we mentioned before, PERC, hybrid
11 sequential batch reactor, biological oxidation of organic
12 matter, biological nutrient removal, tertiary treatment
13 utilizing disk filtration and UV disinfection. We will
14 meet ADEQ Title 18 Class A+ effluent standards and we
15 have the ability to meet EPA Class B biosolids.

16 This just gives you an overview or insight
17 into what the facility will look like. This is the
18 treatment process schematic, which we can go into that in
19 detail if anyone has any questions.

20 The Class A+ effluent is pretty
21 self-explanatory as far as water quality. These are the
22 permits that we're obtaining, obviously, through
23 Maricopa County, ADEQ, and the City.

24 This is the anticipated project schedule,
25 and we're pretty close to that -- staying within that.

1 Obviously, some things move around, but, hopefully, we'll
2 complete design by October and start construction the
3 first quarter of '07, with the completion of first
4 quarter of '08, and startup around that time.

5 Primary disposal of effluent will be the
6 percolation, percolation basins or recharge and reuse,
7 onsite reuse, as well as potential other sources for
8 reuse within the communities.

9 Secondary disposal: Discharge into adjacent
10 recharge basins, which may be off the site or down the
11 road for future -- the ultimate 8 MGD. There may be
12 other adjacent recharge basins added on, and additional
13 land purchased for that, ASR wells, those type of things,
14 and then possibly in the far future, NPDES.

15 Any questions and answers on that one right
16 now or --

17 MR. KLINGLER: We've had a thorough
18 presentation of this previously. I think we had a chance
19 to ask and answer questions previously, and I think we've
20 got those. And if there's no other questions from the
21 Committee, do you want to go ahead with SPA-5 at this
22 time?

23 MR. OWEN: Oh, sure.

24 MR. KLINGLER: Okay.

25 MR. OWEN: This is SPA-5, which is the other

1 regional water reclamation facility located in Surprise.
2 Obviously, we've been through this, so I'll be very brief
3 on this one and just highlight the key points.

4 This project in SPA-5, the water reclamation
5 facility, financing will initially come from Elliott
6 Homes, Whittman, which is now Woodside Homes and Anderson
7 Land. Those are the three major builders and developers
8 involved at this point.

9 As I mentioned, just like the model with
10 SPA-4, the City of Surprise will retain ownership once
11 the substantial completion is completed and operations
12 will then be under the responsibility of the City of
13 Surprise and/or contract operations.

14 The planning areas, as you see here, just to
15 point this out quickly, SPA-5 is this area here. And the
16 facility is located here, down on the south end of the
17 SPA-5 area, near the canal there.

18 Population 17 -- approximately 17,600 units,
19 with a population just about 50,000 people.

20 Again, this site initially starts at 1.2 and
21 goes to an ultimate capacity of 8 MGD, as well, which is
22 more than enough capacity for that area out there.

23 Again, this site was a good location because
24 the gravity collection system flows without lift stations
25 and close to the discharge, and sufficient setbacks were

1 met by using this land, and an effective use of the land.

2 Process, we've been through that, on the
3 PERC ASP system. This is a similar layout. And effluent
4 quality, A+ effluent.

5 All the necessary permits will be obtained
6 from the proper regulatory agencies.

7 On this schedule, again, it's a mirror image
8 of the other, give or take a couple months. So beginning
9 quarter '08, which is substantial completion. It's the
10 target date.

11 Primary disposal, again, percolation basins,
12 irrigation for other uses, reuse within the communities
13 there in the SPA-5 area, and then secondary disposal
14 discharge to adjacent other recharge basins and/or NPDES.

15 Any questions on the SPA-5?

16 MR. KLINGLER: Anybody have any questions
17 for Steve at this time? If not --

18 Thank you. If you would also hang around
19 and, after the public comment, we'll see if there's any
20 more questions, and we'll take action then.

21 Thank you, Steve.

22 Now, at this time, public comments are
23 invited. And we've got some cards here, so, please, if
24 you would adhere to the three-minute time limit:

25 And let's start with -- I've got the name of

1 Robin Bain.

2 Good afternoon. If you could give your name
3 and address for the record, we'd appreciate it.

4 MS. BAIN: My name is Robin Bain. I work
5 for Global Water Resources and Hassayampa Utilities
6 Company, 21410 North 19th Avenue, Phoenix, Arizona 85027.

7 First of all, I'd like to thank you for the
8 opportunity to speak this afternoon.

9 We certainly do applaud the efforts of MAG
10 with their regional wastewater planning and, in this
11 case, of the Balterra folks for their application.

12 However, even though we recognize they're
13 capabilities and abilities to provide service in that
14 area, we do oppose the service area as proposed, and we
15 propose instead that this Committee consider shrinking
16 the application of the service area to the approximate
17 two sections that is now apparently in their certificated
18 area, which is the Balterra development itself.

19 And let me just take my few minutes here to
20 list some of our thoughts and comments on this matter.

21 Hassayampa Utilities Company is a
22 wholly-owned subsidiary of Global Water, and Global Water
23 is a private water and wastewater utility that is
24 regulated by the Arizona Corporation Commission, as many
25 of you know. We are not affiliated with any developer.

1 We are locally and privately owned and very well
2 capitalized.

3 We have submitted a 208 also in western
4 Maricopa County. We submitted that on May 8th, and our
5 208 is for 175 sections, approximately. That's about 151
6 sections more than Balterra's current proposed 208.

7 Our 208 was of that magnitude largely at the
8 suggestion and encouragement of Maricopa County, who
9 encouraged us to submit a regional plan, we certainly
10 feel very confident that we have done just that.

11 And it's a very comprehensive regional plan
12 that discusses at great length both wastewater and
13 reclaimed water, comprehensive integrated services, a
14 phased approach, looking at probably seven water
15 reclamation facilities in this area over the fullness of
16 time and could -- you know, could well see the avoidance
17 of having another 151 208 plan amendments come in here,
18 or 50, or whatever the development community would have
19 it be.

20 MR. KLINGLER: If you have one concluding
21 sentence to --

22 MS. BAIN: Absolutely.

23 In conclusion, we do oppose the service area
24 as proposed. We do believe that the 208 does not have a
25 first in, first approval kind of mandate from the Clean

1 Water Act, but instead the mandate is for area wide water
2 quality full master planning and regionalization, which
3 we believe our May 8th Hassayampa Utilities Company 208
4 does indeed provide.

5 Thank you.

6 MR. KLINGLER: Can you answer just a couple
7 questions real quick, if I may just to clarify?

8 One of the comments that the Balterra folks
9 made was they had a Certificate of Convenience and
10 Necessity for this area.

11 Does Global Water or HUC have that or what's
12 the status?

13 MS. BAIN: Global Water has not yet filed a
14 CC&N. But we'll be able to do so with the property
15 owners who have requested service of Hassayampa Utility
16 Company, which includes a number of those which are
17 currently shown in Balterra service area.

18 MR. KLINGLER: Then one other clarifying
19 question: One of your comments in the letter from
20 Global Water was something about Ruth Fisher School
21 District and some interest that they had in joining a --
22 some sort of regional solution treatment plant. There's
23 a vague letter attached that says they're interested in
24 joining with someone.

25 Balterra submitted us some letters that say

1 specifically they're interested in partnering with
2 Balterra.

3 So is there some letter we don't have that
4 says they're specifically interested in HUC or
5 Global Water or was that a general letter, they're
6 interested in just getting rid of their treatment plant?

7 MS. BAIN: The letter we submitted was that
8 general letter we received which expressed interest in a
9 regional solution.

10 MR. KLINGLER: Any other questions from
11 the --

12 MS. BAIN: I might just add that our 208
13 does provide for services to the Ruth Fisher School if
14 indeed they would request that service.

15 MR. KLINGLER: Question?

16 Rich.

17 MR. WILLIAMS: Thank you, Mr. Chairman.

18 Global Water Company's current CC&N
19 application is for how large, in that specific area of
20 the West Valley?

21 MS. BAIN: We currently have an application
22 for the 2000-acre CC&N in what we call Hassayampa Ranch,
23 which is west of the Hassayampa River, and it was the 208
24 that was submitted to Maricopa County and to MAG last
25 summer.

1 MR. WILLIAMS: From the Corporation
2 Commission side though the CC&N area, you've applied for
3 additional area, you've applied for the MAG 208
4 amendment. Do you currently have an entitlement to an
5 existing CC&N area in the MAG 208 service area in that
6 same specific area?

7 MS. BAIN: No. For wastewater, no, we do
8 not. We just had our first hearing with the ACC last
9 Thursday, and that went fine. And now we're teeing up
10 for the remainder of the public meetings on that CC&N for
11 Hassayampa Ranch, which is under the Hassayampa Utilities
12 Company. We've not yet made application for the oh,
13 gosh, 80-some sections that have requested service of us,
14 but we will be doing so this summer under the umbrella of
15 Hassayampa Utility Company, and that will include
16 Belmont, Copper Leaf, Silver Water Ranch, Silver Springs
17 Ranch, the 339th Avenue Development, and many others.

18 MR. WILLIAMS: Please bear with me. I just
19 received this information here today and haven't had a
20 chance to read all of it.

21 So, correct me if I'm wrong, but I heard you
22 state that you do not currently have a CC&N entitlement
23 for wastewater in this general area.

24 MS. BAIN: Not that is finally approved, no,
25 we do not.

1 MR. WILLIAMS: You are in the process of
2 applying for some number of square miles?

3 MS. BAIN: Yes.

4 MR. WILLIAMS: A CC&N area extension?

5 MS. BAIN: Correct.

6 MR. WILLIAMS: How many square miles is
7 that?

8 MS. BAIN: Whatever 2000 acres turns out to
9 be. I don't know that number.

10 MR. WILLIAMS: Three point something.

11 MS. BAIN: Right. That's our current
12 application, sir. But we will be expanding that upwards
13 of 80 or so in our application this summer. Again, to
14 cover Belmont, Copper Leaf, Silver Water Ranch, Silver
15 Springs Ranch, 339th Avenue Development, and many others.

16 MR. WILLIAMS: Do I also understand
17 correctly that the ranch that you mentioned that's
18 Hassayampa Ranch or whatever, that's further west in this
19 new 208 amendment request, and the potential 2000 acres
20 of CC&N request are an effort beyond that earlier CC&N
21 effort?

22 MS. BAIN: No. The Hassayampa Ranch 208
23 amendment is the original Hassayampa Utilities Company
24 venture, if you will, opportunity, in western Maricopa
25 County. It is immediately to the west of the

1 Hassayampa River. It is just north of Indian School Road
2 at approximately 339th Avenue, something like that,
3 tucked into the southeast corner of what is also known as
4 Belmont.

5 MR. WILLIAMS: Thank you. Okay. Thank you.

6 MR. KLINGLER: The next comment card I had
7 wishing to speak is from Garry Hays.

8 Garry, if would you state your name and
9 association for the record, please.

10 MR. HAYS: My name is Garry Hays, and I'm a
11 member of the law firm of Gallagher & Kennedy, appearing
12 on behalf of New World Properties, who is developing
13 1200 acres commonly referred to as Copper Leaf.

14 This 1200-acre, a portion of it is included
15 in the 208 file you have in front of you. Another
16 portion, the southern portion of I-10 or south, south of
17 I-10, is not included in this.

18 By granting this 208, you're going to have a
19 master-planned community of 1200 acres with two sewer
20 providers. It doesn't really work well to bifurcate a
21 master plan with the utilities.

22 Copper Leaf -- and you have a letter from
23 the president, Mark Brown -- has made a request for
24 service from Hassayampa Utilities Company, not from
25 Balterra.

1 And we've talked a lot about the ACC, and if
2 I could, just by way of background, I spent a few years
3 there as an advisor to a commissioner, so I can talk
4 about ACC issues and answer some questions.

5 One thing you have to think about that's
6 very important -- and my time is quickly going away -- is
7 consolidating utilities. The ACC, three or four years
8 ago, adopted a policy that said they wanted consolidated
9 wastewater and water utilities.

10 Balterra, as far as I know, is not in the
11 water business nor will ever be in the water business,
12 however, Global is. Global is and has become, in the
13 past three or four years, the largest game in town.

14 Global has a great reputation with ACC.
15 Global is someone who the ACC uses as a model because
16 they do have consolidated water and wastewater.

17 In regards to the CC&N, my client's
18 development is not included in the Balterra CC&N. I
19 could be wrong, but I think their CC&N is only limited to
20 the two square miles that is their development. It does
21 not include my client's. And I think there are two other
22 developments that have the same issue of being bifurcated
23 by I-10. I don't think any of those other developments
24 are included in Balterra's current CC&N.

25 So, in answer to Mr. Williams' question,

1 anybody who wants to serve my client's development, or
2 some of the other developments that are out there, will
3 still have to go in and get a CC&N extension. But I
4 think it's very important to remember that the people who
5 regulate these utilities want water and wastewater.

6 Now, I'm not saying that Global is going to
7 provide water tomorrow, but the worst secret in town is
8 they're trying to buy some of the utilities out there.
9 So they, Global, will be able to provide water and
10 wastewater to the developments out there. And I don't
11 think Balterra will ever be able to do that.

12 That's all I have.

13 Do you have any questions for me?

14 MR. KLINGLER: Mr. Hays, just quickly, you
15 say your clients have requested service from Hassayampa
16 Utilities Company for both north and south of I-10?

17 MR. HAYS: That is correct.

18 MR. KLINGLER: And Balterra's proposing just
19 to serve north, if I understand right.

20 And your client also is concerned that there
21 would be more than one sewer provider or that there would
22 be a different water and sewer provider? What?

23 MR. HAYS: Well, a bigger concern is having
24 two sewer providers for one master plan.

25 MR. KLINGLER: In any case, there were two

1 sewer providers to an area, and this is in an
2 unincorporated part of Maricopa County, right? When
3 there are two sewer providers in the Valley, what
4 typically happens?

5 MR. HAYS: I don't really know the answer to
6 that question. I can't think of anything off the top of
7 my head.

8 MR. KLINGLER: I think one buys another one
9 out.

10 MR. HAYS: You said it, not me, Chairman.

11 MR. KLINGLER: If there is a conflict, I
12 think that usually happens at some point.

13 MR. HAYS: But I don't think it's quite that
14 easy. I mean, you have to go through the ACC process of
15 reorganization or selling an asset and transfer of a
16 CC&N. It's at least a year process, if not more.

17 I don't know if you guys are aware, they're
18 pretty busy down there at the ACC, and you can't get
19 anything through in a timely manner. But don't tell them
20 I said that.

21 MR. KLINGLER: They lost some good staff.

22 MR. HAYS: Staff is the real workers. I sat
23 in the back of the room.

24 MR. KLINGLER: Any other questions from the
25 Committee?

1 If not, thank you very much.

2 Next I have a card from Bryan O'Reilly.

3 Mr. O'Reilly, if you would state your name
4 and address and affiliation, please, for the record.

5 MR. O'REILLY: My name is Bryan O'Reilly.
6 I'm a partner with Sierra Negra Ranch, 50 South Jones
7 Boulevard, Las Vegas 89107.

8 I too am here to oppose the Balterra 208
9 plan amendment. We've been put in this plan without our
10 permission. We too would like a fully integrated
11 solution and have been working with Global for some time
12 now in hopes they could provide that to us.

13 We are -- actually, as you can see, that
14 letter from the school district was the letter they sent
15 to us in regards to having a regional solution. We too,
16 as the County proposed, we're looking for a regional
17 solution. And, in trying to work with Balterra, the
18 regional solution proposed was only north of I-10,
19 splitting, therefore, Sierra Negra Ranch in half and
20 putting us in the same position as Copper Leaf. Those
21 are probably my biggest gripes.

22 As you can see, I wrote a long letter. It's
23 there in front of you. And if there are any other
24 questions, we can be contacted through the letter.

25 MR. KLINGLER: Any questions from the

1 Committee at this point?

2 MR. HOLLANDER: This question may go to some
3 of the other individuals and concerns that provided
4 letters to this effort, and that is, you indicated that
5 your property is intersected by the freeway, so part of
6 it is in the area that Balterra is considering for this
7 208 amendment.

8 MR. O'REILLY: Correct. The northern part
9 of our property is included, the southern part is not.

10 MR. HOLLANDER: Okay. Thank you.

11 MR. IWANSKI: Mr. Chairman, Mr. O'Reilly,
12 did you have a chance to voice these objections to the
13 Balterra principals?

14 MR. O'REILLY: Yes.

15 MR. IWANSKI: When did you do that, please?

16 MR. O'REILLY: I have letters actually
17 dating that I could send to you if you need to --

18 MR. IWANSKI: Just ballpark. When did you
19 first raise the objections?

20 MR. O'REILLY: Prior to their submittal.

21 MR. IWANSKI: Okay. Thank you.

22 Thank you, Mr. Chairman.

23 MR. KLINGLER: And you've indicated you
24 talked to them, and what was their response?

25 MR. O'REILLY: Their response to us was that

1 we need to move forward. The only way we're going to get
2 approved is if we move forward, and it's in our best
3 interest to go ahead and start with an application.

4 MR. KLINGLER: If we could, if -- how can we
5 do this? I guess --

6 Paul and Jim, if you'd like to comment here.
7 I guess, if there's -- we may have some questions, and if
8 there's anything that you'd like to respond to the public
9 comment we have had so far, we would appreciate it.

10 MR. GILBERT: Thank you. We would like to
11 comment.

12 MR. CONDIT: Could we get our graphics back
13 up? I think it's much clearer if we could show it on the
14 map to everybody.

15 MR. GILBERT: We too initially want to
16 reciprocate the respect that Global indicated for us. We
17 hold them in the same regard. They're a very fine
18 company, and we're not here to say they're not qualified
19 just as they avoided saying we weren't qualified. I
20 appreciate keeping this on the merits. And we will
21 acknowledge they're a fine company and we wish them well.

22 Their request, however, to shrink our
23 application to the two sections that's approved by the
24 CC&N, that's where we started, and we were happy to do
25 that.

1 But you've heard time after time from all
2 three speakers: We want a regional solution. I looked
3 to the County, and the County said to us: We want you to
4 go beyond just your project and the Ruth Fisher School
5 District. So the shrinking to the two sections is just
6 the antithesis of what the County asked us to do.

7 So we're not this big octopus trying to take
8 over all the sewer systems out there; that's not our
9 goal. We're cooperating with the County and trust that
10 we should be rewarded for doing what we were instructed
11 to do.

12 In fact, we were much further along than
13 anyone else. That has become apparent from the questions
14 that you've asked here. And so we carved out, frankly, a
15 relatively small area, and we'll leave the rest of the
16 175 sections to Global. They can have them with our
17 blessing, and we're happy to see them proceed.

18 A point was made that they're proceeding
19 with the 175 sections, but not one speaker today has told
20 you, including Global, that the County wanted them to
21 proceed in the area we are. We stand here alone with the
22 County support for this southeastern area of the Tonopah
23 general area. We're the only ones that the County has
24 asked to come in and process this 208 amendment for this
25 particular area.

1 Let me clear up Ruth Fisher. I think
2 Ruth Fisher, they're in a bind. They need help in a
3 hurry, and Ruth Fisher is going with the one that can
4 deliver the fastest. They chose us because of that, and
5 some of your questions, I think, vindicate that
6 assessment. That's why they're in favor of us.

7 We have a specific letter, not a general
8 letter, but a specific letter saying they're ready to go
9 with us, and they're in our CC&N. So we already have
10 that established.

11 We are the only ones that are standing
12 before you in the posture today with an approved
13 Certificate of Convenience and Necessity from the
14 Corporation Commission.

15 I thought -- frankly, the second speaker
16 puzzled me a little bit. He said: Well, I can speak for
17 the Arizona Corporation Commission because they're
18 interested in consolidation.

19 They're the ones that approved our CC&N. I
20 rest my case. They've approved us. We're here. So
21 don't tell us that somehow we're violating the policy.
22 The Arizona Corporation Commission, they've approved us;
23 we're here. So I don't think it can be challenged that
24 somehow we are not proceeding in harmony with the Arizona
25 Corporation Commission.

1 And then the interesting thing to me is if
2 the Arizona Corporation Commission says they want to
3 consolidate water and sewer, the water company is
4 separate from Global right now. Now, they may be in the
5 process of attempting to purchase it, which they may be,
6 but we are here, having worked out and worked with the
7 holder of the CC&N for the water company for our 208
8 amendment. So -- and that company is the Water Utility
9 Company of Greater Tonopah. They hold the CC&N, and we
10 have worked everything out with them. There are no
11 problems. We've got an agreement with them, and we've
12 worked closely and in conjunction with what they have
13 offered.

14 A point has been made that there are some
15 hardships that may be encountered because part of the
16 development might be in our 208 plan and in Global's or
17 some other source.

18 First of all, I point out that that happens
19 all over the Valley. You've got LPSCo serving in several
20 communities sewer and water, but primarily sewer, that I
21 think of, where the sewer is also being provided in the
22 community with the same development with two sewer
23 providers. That has not seemed to be a hindrance to
24 growth or to things going forward smoothly in any sense.

25 Secondly, I submit that if you really want

1 to know what separates it, it's the freeway. So much of
2 the concern that's been expressed, there's already a
3 barrier there and that's in the form of the freeway.
4 That separates us from some of these other developers.
5 That's a much more significant barrier than the lines of
6 the 208 amendment. So it's already split.

7 I want to end with this comment on the
8 regional solution. That's what I thought we were. So
9 we're here. You've got representatives from the County.
10 If I've said anything that's incorrect, I'm sure they
11 will hasten to correct me. They always have in the past.
12 And we're doing the regional solution that they asked us
13 to do.

14 We're well down the road and we're asking
15 for a relatively small area here that we can serve and
16 serve very well. And we didn't try to include or exclude
17 anyone in this area.

18 Now, you have some representatives here from
19 some people in the area that are indicating reticence to
20 join in our 208 plan, but we also have many other
21 developers that are also in this area that are in
22 enthusiastic support. Frankly, we didn't anticipate
23 developers appearing in opposition or we would have had
24 them here in support. But that's really not -- it isn't
25 a popularity contest.

1 I just want to emphasize, in closing, we're
2 doing what the County told us to do. This is where they
3 said they wanted the region for this area. We have a
4 strategically located wastewater treatment plant that
5 goes exactly where it drains; it functions well, and
6 we're here with the support of the County.

7 We'll be happy to answer any other questions
8 that you have.

9 MR. KLINGLER: Thank you, Mr. Gilbert.

10 I just have a couple here, and maybe you've
11 done this before, but the two original sections on the
12 map, is there a way to show that? And then how many
13 others did you say were included?

14 MR. CONDIT: This is the Balterra project
15 here, and the Ruth Fisher School District. This is where
16 the existing CC&N is.

17 The particular projects of question are this
18 area in the purple. Here is the Copper Leaf. This area
19 here is what was previously called Sierra Negra.

20 I'd like to point out that not only does
21 I-10 separate the pieces of Sierra Negra, but there's
22 also some land in between them too. They're not two
23 contiguous pieces of property.

24 MR. KLINGLER: So the border there is your
25 whole area?

1 MR. CONDIT: This border right here is
2 the --

3 MR. KLINGLER: Which is how many sections,
4 did we establish?

5 MR. CONDIT: 24 square miles, approximately.

6 MR. KLINGLER: One thing that I didn't hear
7 an answer to at some point is -- was a concern that this
8 Committee would hear 51 or additional 208 amendments in
9 this area. I don't know.

10 MR. GILBERT: Well, as fond as I am of your
11 company, I'm not -- this is the only area that we're
12 seeking to serve sewer in, and it's the area that the
13 County designated. We have no expansion plans. This is
14 all we're doing.

15 My understanding is that Global has an
16 interest in doing the rest, and we wish them well in
17 that. So I don't think you're going to get that many
18 applications. I think you're going to get ours and maybe
19 Global's.

20 MR. KLINGLER: All right. Thank you. That
21 was my understanding.

22 Any other comments from the Committee?
23 Jacqueline?

24 MS. STRONG: You said the original area was
25 two sections, and it was expanded to how many sections?

1 MR. CONDIT: 24.

2 MR. GILBERT: It went from two to 24 at the
3 request of the County.

4 MR. KLINGLER: Did you have a question?

5 MR. IWANSKI: I have two questions, and I
6 appreciate your comments.

7 I asked Mr. O'Reilly when he raised
8 objections. Were you aware of all the objections from
9 Global Water, from the New World Properties, and
10 Sierra Negra Ranch? When were you first aware of those?

11 MR. GILBERT: I'll have to defer to Jim to
12 answer that.

13 MR. CONDIT: I'll briefly -- this is
14 Jim Condit.

15 I'll briefly go over what we did as far as
16 planning.

17 This started in October of '05, when we met
18 with Maricopa County Environmental Services and were told
19 that we needed to provide a regional solution.

20 We were also told that the County Board of
21 Supervisors were going to have a regional planning
22 meeting to discuss water and wastewater, as well as other
23 regional planning issues in Tonopah, and that was held in
24 November of '05.

25 We then met with Maricopa County again in

1 December '05, with all the developers, and began talking
2 about what it would take to do a water and sewer master
3 plan, at which time, we said that we would volunteer to
4 do this north Tonopah area.

5 We presented a plan to Maricopa County and
6 the other developers, of which Sierra Negra and
7 Copper Leaf were both present, in January of '06. We
8 asked for comments at that time. None were received.

9 We did the master plan, presentation of the
10 actual document in February of '06. We distributed the
11 report to all in February, as well as the County. We
12 asked for comments. None were received. And we had some
13 letters talking and requesting what our service rates
14 were going to be, and we explained to them that we were
15 not in the position to set rates because we had not
16 completed our application with the Arizona Corporation
17 Commission, and that we'd be glad to share our rates with
18 them once we knew what they were. And we are still in
19 that process of finalizing the rates. We think it will
20 be done next month.

21 We even had a separate meeting with
22 Rick Jellies (phonetic) and Brian O'Reilly, with
23 Morrison-Maierle in January of '06. I was present, and
24 we discussed in detail with Morrison-Maierle how they
25 could assist in planning the remainder of this area with

1 those developers.

2 They walked away from the meeting and we
3 never heard again from them.

4 Our master plan was submitted to Maricopa
5 County officially in April of '06, and again we have not
6 heard any comments until today.

7 MR. IWANSKI: That chronology is extremely
8 helpful to me. I appreciate it from both of you. Thank
9 you.

10 Because there were indications in several of
11 those letters that mention that information was not
12 received from the Balterra representatives, and if people
13 are asking for exact rates or ranges of rates that early
14 in the process, I don't think is fair to you all. But
15 that chronology was extremely helpful. Thank you.

16 Thank you, Mr. Chairman.

17 MR. KLINGLER: Bob, did you have a question?

18 MR. HOLLANDER: I guess I have a question.
19 First question, I guess, is regarding the 208 amendment
20 components. Had the Balterra 208 plan, aside from the
21 public comment portions, met all the requirements under
22 the 208 plan based on MAG evaluation?

23 MR. GILBERT: The answer is yes.

24 MR. KLINGLER: Yeah. The MAG staff has
25 indicated that they have -- and I believe this one, again

1 normally we would have a City that would bring it forward
2 or would have a letter of no objection. In this case, it
3 was an unincorporated area of the County.

4 The County was, I guess, a sponsor. It has
5 to come through a MAG member agency to get this far.

6 I'd like to know, is there anything that
7 Dale or Ken want to comment on, while we're still in the
8 public comment portion of the hearing, from the County
9 perspective since your name has been invoked?

10 MR.- JAMES: The MAG 208 was submitted to us
11 in December of '05. We went through three iterations
12 where the County issued comments and the Balterra Sewer
13 Company responded to those until we were satisfied that
14 the project satisfied all the technical merits of the 208
15 plan. And so that's why we were, at that point -- and
16 this was in May -- that we submitted a letter of
17 sponsorship to the MAG Committee.

18 MR. KLINGLER: And I don't know -- and just
19 to follow up a little bit, did this happen before, that
20 you have two applications for the same area? Has that
21 ever happened before? I don't know if there is a process
22 for that, but, generally, you respond to whoever you have
23 in front of you, I guess?

24 MR. BODIYA: Yeah. For Maricopa County,
25 correct, yes.

1 And just as a clarification, and I know both
2 sides have -- you know, point out that we, you know, were
3 searching for regional solutions. We do that in all
4 situations. We try to make sure that we have a good
5 project for an area. We don't like to see isolated
6 pieces of property left out hanging, which we often get
7 in submittals where developers say: I'm just going to
8 treat my part. We want to see that we cover adjacent
9 properties, and so that's where we start with on looking
10 for regional solutions. So we're in support of that, and
11 we encourage that.

12 Normally we're doing it in municipal areas
13 and we get the support of a municipality when we're doing
14 that. This one is held out in the rural area right now.
15 It's moving towards urbanization, but not quite there
16 yet. But we try to plan ahead and look for what's best
17 for the area. And if we just accept each developer, then
18 we could be in a situation where we have, you know,
19 50 plants.

20 Global's proposing seven treatment plants
21 for that area. It's not one service area, it's actually
22 seven plants that we are currently reviewing a submittal
23 for.

24 MR. KLINGLER: In the process -- again, it
25 just maybe difficult to do, but if they have submitted an

1 application in May of this year and this other one came
2 in whenever -- last year, October, I guess --

3 When did you say? '05?

4 MR. JAMES: It came to us in December.

5 MR. KLINGLER: If they go through their
6 application, presumably they would -- if this is approved
7 through the whole MAG process with Balterra, then Global
8 would go through their process and not include that. You
9 wouldn't have an overlapping application, would you?

10 Again, it might be difficult because you
11 haven't done this before. But I'm assuming that they
12 wouldn't have competing applications for the same area if
13 one gets resolved some way.

14 MR. BODIYA: There are some conflicts right
15 now that we are addressing in the Global application, but
16 there are some lines crossing -- some service areas that
17 cross. And so --

18 MR. KLINGLER: It will come here when it
19 gets all straightened out through you guys, is what
20 you're saying?

21 MR. BODIYA: Correct. We would also be the
22 sponsor of that project once it meets our criteria.

23 MR. KLINGLER: Any other questions from the
24 Committee?

25 MR. McNEIL: Mr. Chairman, this appears to

1 be an issue of two entities competing for the rights or
2 exclusions to provide sewer service in certain areas.
3 While I think that the Committee is empowered with
4 determining whether or not certain visions for
5 wastewater, for providing wastewater, are consistent with
6 our regional vision, I'm not certain that this Committee
7 and the 208 plan is the place where service areas are
8 actually established.

9 Can we approve overlapping service areas in
10 the 208 plan, if we see both options as consistent with
11 our regional vision? It certainly does not -- our
12 approval of a certain planning area does not establish a
13 right or an exclusion to provide service in a certain
14 area, and I would request maybe a discussion and comments
15 from other members.

16 MR. KLINGLER: Yeah, I don't think we've
17 done that, and I do think our task is kind of limited to
18 good planning for the sewer service. And again, yeah,
19 our purview is not the service providers, it's kind of
20 looking at the consistency with the MAG 208 plan and
21 where we do amendments.

22 And I think that, you know -- I don't speak
23 for everybody, but it makes sense to me that we would go
24 through the analysis and be clear we don't have
25 overlapping -- that we would do something that would be

1 consistent with what makes good planning sense.

2 And so I think Bob's question is valid. Is
3 this before us properly through the process and we could
4 look at that, and then anything else that would seek to
5 amend, that we'd have to look at as to whether that makes
6 good planning sense? That would be my suggestion.

7 MR. HANEY: Mr. Chairman, I'm assuming
8 that -- was it Bob that was speaking before you?

9 MR. KLINGLER: David McNeil from Tempe.

10 MR. HANEY: I was going to make exactly the
11 same comment that David made.

12 I believe that it's the duty of the ACC to
13 determine service areas, not this Committee. Once those
14 service areas are determined, then we decide whether a
15 wastewater plant is consistent with the 208 plan.

16 I think that we're kind of put in -- I
17 wouldn't say put the horse before -- or the cart before
18 the horse, but I think we're kind of mixing the issues,
19 and I think that ACC needs to do their job before we
20 start determining whether the wastewater facilities are
21 consistent with the 208 plan.

22 MR. KLINGLER: Okay. Thank you.

23 And also, I think we do have another check
24 in the system, so to speak, where we have the local
25 jurisdiction that brings forward or sponsors whatever

1 amendment has determined what's best in their area too.
2 So we've got another check and balance in the system, if
3 you will, beyond the ACC.

4 MR. HOLLANDER: Mr. Chairman, I have another
5 comment.

6 Like most of us here, I support
7 regionalization and consolidation of utilities wherever
8 it's possible. Certainly Global Water has a good
9 reputation, well-proven.

10 But it appears to me that Balterra has done
11 everything that was requested of them and probably more,
12 have CC&N in the area, as they've indicated. And it
13 would appear to me that, at this stage, they have a right
14 to carry out their plan.

15 MR. KLINGLER: Rich?

16 MR. WILLIAMS: Mr. Chairman, I concur.

17 And isn't there an issue, also, we're not
18 supposed to be the legal arm of this process. We're an
19 advisory board. Isn't there an obligation to act on the
20 applications, viable applications before us, and not to
21 look too deeply and drill down too far into how many
22 maybes and possibilities there are?

23 MR. KLINGLER: One of the things I'd like to
24 do here is see if we can go to our next step. We haven't
25 done this before in the past, but generally we get public

1 comments and then we close the public hearing, and then
2 we have an agenda item where we consider the public
3 comments and we have the kind of discussion. It opened
4 up a little bit to get a few questions here, but if there
5 aren't any other questions of Mr. Gilbert and Mr. Condit
6 at this point, then why don't we consider the public
7 comments and -- which is part of what we're doing here --
8 or have other discussions or continue this.

9 Is there any other questions at this point?

10 If not, thank you.

11 MR. O'REILLY: I'd like to -- is there
12 another way to comment on what was said?

13 MR. KLINGLER: What we would like to do is
14 close the public comment. Then we have an agenda item
15 for discussing this, and then you can comment on that, if
16 you want to do it that way.

17 MR. O'REILLY: The timeline which was given
18 in regards to our comments and our issue and our
19 questions that were given to them, weren't exactly just
20 about rates. It was about a developer-owned utility,
21 because having two or three significant developments at
22 one time --

23 MR. IWANSKI: Just as a matter of courtesy,
24 please accept my apology.

25 But Mr. Chairman, if we could get those

1 comments for the record -- and I don't know how you want
2 to handle it -- because we gave Mr. Gilbert an
3 opportunity to respond to those speakers. My suggestion,
4 if it's all right with the rest of the Committee, is
5 allow -- if there's incorrect information or questionable
6 information, I feel that we need to give Mr. O'Reilly an
7 opportunity to respond as part of this public record.
8 You can't have just one party respond and not give equal
9 time if there is additional information.

10 So I'll defer to the judgment of my brethren
11 here, but you heard my -- how I feel about it.

12 MR. KLINGLER: Well, again, I don't want to
13 have a whole debate here. Generally we just say a
14 three-minute comment period.

15 If you just want to correct something
16 briefly, I guess we can allow that for the public record,
17 because your discussion was on the record. So if we
18 could just limit it to that.

19 MR. O'REILLY: Thank you.

20 Bryan O'Reilly, Sierra Negra Ranch.

21 Our attempt in our letters is a timeline as
22 a developer-owned utility or a proposed utility. It was
23 our request that we try and work together, as opposed to
24 work separately on an integrated utility.

25 They decided it was in their best interest

1 to work alone and not with the two other people that are
2 their next-door neighbors and go out and look for the
3 people who would request service from them besides us.

4 We spent the time to work with an
5 independent utility looking for a regional solution that
6 could be integrated, therefore, there was no comments on
7 their plan because we were in the process of working with
8 Global for the past five months to do the 208 application
9 with them and request service from Global. So,
10 therefore, there's no reason for us to comment on their
11 plan. Their plan was good for Balterra, not for us.

12 MR. KLINGLER: Okay. Thank you. Appreciate
13 the correction.

14 All right. Give you just a brief comment,
15 Ms. Bain, if you would, if there's something that needs
16 to be corrected. Again, I don't want to have a debate on
17 this, but if you could just correct anything that was
18 incorrect for the record.

19 MS. BAIN: Thank you, Chairman.

20 Just for the record, I just wanted to
21 mention that Hassayampa Utility Company is also way down
22 the road with our plans in Hassayampa Ranch, which is a
23 part of the consolidated 208 that we submitted on
24 May 8th. We do have an APP application as well as an
25 AZPDES application that's been filed, and, essentially,

1 we're waiting for consistency from the 208 process so we
2 can get those permits.

3 So I just wanted to make you aware of that,
4 that we are well into the process as well. We actually
5 own and operate a 3 MGD facility in Pinal County that is
6 our standard water reclamation facility A+ effluent.

7 We'll be very pleased when it's our turn to
8 come back and present the Hassayampa Utility Company to
9 expand on that plan and what we currently do and what
10 we're planning to do to this region.

11 I also just wanted to mention that it is
12 true that Balterra is ahead of HUC consolidated 208 by
13 six months, it might seem.

14 But I do think that the merits of the
15 regional comprehensive approach that we are proposing may
16 be worth slowing down the Balterra proposal 208 before
17 you today so we would catch up, and then you can really
18 compare apples and apples, so to speak, in terms of what
19 is best in terms of meeting the charges of this Committee
20 and of MAG, in terms of meeting the water quality
21 management planning in this region.

22 Thank you so much.

23 MR. KLINGLER: Okay. I think we've got the
24 public comment.

25 I do appreciate everybody's interest and the

1 public comments, and we will be considering those.

2 So, at this time, I'd like to close the
3 public hearing and request the court reporter to end the
4 transcription.

5 (The public hearing portion of the
6 proceedings concluded at 4:19 p.m.)

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STATE OF ARIZONA)
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COUNTY OF MARICOPA)

I, Marianne S. Burton, a Certified Reporter,
Certificate No. 50519 in the State of Arizona, do hereby
certify that the foregoing pages constitute a full, true,
and accurate transcript of all proceedings had in the
foregoing matter, all done to the best of my skill and
ability.

I FURTHER CERTIFY that I am not related to
nor employed by any of the parties hereto, and have no
interest in the outcome.

WITNESS my hand this 5th day of July, 2006.


Marianne S. Burton
Arizona Certified
Reporter No. 50519